



41 CONVERTIBLE

OWNER'S MANUAL

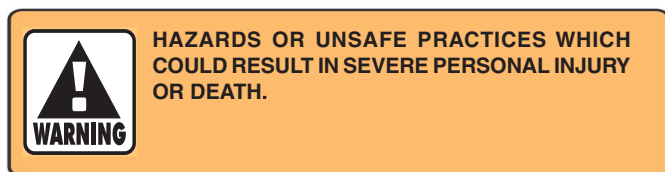
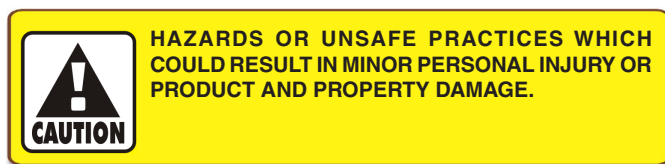


Albemarle Boats
140 Midway DR.
P.O. Box 349
Edenton, NC 27932

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SAFETY INFORMATION

Your Albemarle manual has been written to include a number of safety instructions to assure the safe operation and maintenance of your boat. These instructions are in the form of **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** statements. The following definitions apply:



All instructions given in this book are as seen from the stern looking toward the bow, with starboard being to your right, and port to your left. A glossary of boating terms is included.

IMPORTANT NOTE: Your boat uses internal combustion engines and flammable fuel. Every precaution has been taken by Albemarle to reduce the risks associated with possible injury and damage from fire or explosion, but your own precaution and good maintenance procedures are necessary in order to enjoy safe operation of your boat.

BOAT INFORMATION

Please fill out the following information section and leave it in your Albemarle owner's manual. This information will be important for you and Albemarle service personnel to know, if you may need to call them for technical assistance or service.

BOAT			
MODEL:		HULL SERIAL #:	
PURCHASE DATE:		DELIVERY DATE:	
IGNITION KEYS #:		REGISTRATION #:	
WEIGHT:	DRAFT:	BEAM:	VERTICAL CLEARANCE:
DOOR KEYS:			
ENGINES			
MAKE:		MODEL:	
PORT SERIAL #:		STARBOARD SERIAL #:	
TRANSMISSIONS			
MAKE:		MODEL:	
PORT SERIAL #:		STARBOARD SERIAL #:	
RATIO:			
GENERATOR			
MAKE:		MODEL:	
SERIAL #:		KILOWATTS:	
PROPELLERS			
MAKE:		BLADES:	
DIAMETER/PITCH:		SHAFT:	
AIR CONDITIONER			
MAKE:		MODEL:	
SERIAL #:		BTU OUTPUT:	
DEALER		ALBEMARLE	
NAME:		PHONE:	
DEALER/PHONE:		REPRESENTATIVE:	
SALESMAN:		ADDRESS:	
SERVICE MANAGER:			
ADDRESS:		ALBEMARLE E-MAIL:	
		DEALER E-MAIL:	

Albemarle reserves the right to make changes and improvements in equipment, design and vendored equipment items, at any time without notification.

CERTIFICATIONS & SPECIFICATIONS

(For Export Only)

To be in compliance with European directives for recreational boats as published by the International Organization for Standardization (ISO) in effect at the time this boat was manufactured, we are providing the following information.

Manufacturer:

Name _____

Address _____

_____ Zip Code: _____

Identification Numbers:

Hull Identification Number _____

Port Engine Serial Number _____

Starboard Engine Serial Number _____

Intended Design Category:

☐ Ocean

☐ Inshore

☐ Offshore

☐ Sheltered Waters

Weight and Maximum Capacities:

Unladen Weight - Kilograms (Pounds) _____

Maximum Load - Weight- Kilograms (Pounds) _____

Number of People _____

Maximum Rated Engine Horsepower - Kilowatts (Horsepower) _____

Certifications:

Certifications & Components Covered _____

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IMPORTANT INFORMATION

All instructions given in this book are as seen from the stern looking toward the bow with starboard being to your right, and port to your left. The information and precautions listed in this manual are not all inclusive. It may be general in nature in some cases and detailed in others. The suppliers of some of the major components such as engines, pumps, and appliances, provide their own owner's manuals which have been included with your boat. You should read the information in this manual and the manuals of other suppliers completely and have a thorough understanding of all component systems and their proper operation before operating your boat.

REMEMBER - IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOUR BOAT IS SAFE FOR YOU AND YOUR PASSENGERS. ALWAYS EXERCISE GOOD COMMON SENSE WHEN INSTALLING EQUIPMENT AND OPERATING THE BOAT.

Warranty and Warranty Registration Cards

The Albemarle Limited Warranty Statement is included with your boat. It has been written to be clearly stated and easily understood. If you have any questions after reading the warranty, please contact the Albemarle Customer Service Department.

Albemarle, engine manufactures, and the suppliers of major components maintain their own manufacturer's warranty and service facilities. It is important that you properly complete the warranty registration cards included with your boat and engine(s) and mail them back to the manufacturer to register your ownership. This should be done within 15 days of the date of purchase and before the boat is put into service. A form for recording this information is provided at the beginning of this manual. This information will be important for you and service personnel to know, if and when you may need service or technical information.

The boat warranty registration requires the **Hull Identification Number "HIN"** which is located on the starboard side of the transom, just below the rubrail. The engine warranty registration requires the engine serial number(s). Please refer to the engine owner's manual for the location of the serial number(s).

IMPORTANT:

All boat manufacturers are required by the Federal Boat Safety Act of 1971 to notify first time owners in the event any defect is discovered "which creates a substantial risk of personal injury to the public." **It is essential that we have your warranty registration card complete with your name and mailing address in our files so that we can comply with the law if it should become necessary.**

Product Changes

Albemarle is committed to the continuous improvement of our boats. As a result, some of the equipment described in this manual or pictured in the catalog may change or no longer be available. **Albemarle reserves the right to change standard equipment, optional equipment and specifications without notice or obligation.** If you have questions about the equipment on your Albemarle, please contact the Albemarle Customer Service Department.

Service

All warranty repairs must be performed by an authorized Albemarle Dealer. Should a problem develop that is related to faulty workmanship or materials, as stated in the Limited Warranty, you should contact your Albemarle dealer to arrange for the necessary repair. If you are not near your dealer or another authorized Albemarle dealer or the dealer fails to remedy the cause of the problem, then contact Albemarle within 15 days. **It is the boat owner's responsibility to deliver the boat to the dealer for warranty service.**

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OWNER'S / OPERATOR'S INFORMATION

Registration and Numbering

Federal law requires that all undocumented vessels equipped with propulsion machinery be registered in the State of principal use. A certificate of number will be issued upon registering the boat. These numbers must be displayed on your boat. The owner/operator of a boat must carry a valid certificate of number whenever the boat is in use. When moved to a new State of principal use, the certificate is valid for 60 days.

In order to be valid, the numbers must be installed to the proper specifications. Check with your dealer or state boating authority for numbering requirements. The Coast Guard issues the certificate of number in Alaska; all others are issued by the state.

Insurance

In most States the boat owner is legally responsible for damages or injuries he or someone else operating the boat causes. Responsible boaters carry adequate liability and property damage insurance for their boat. You should also protect the boat against physical damage and theft. Some States have laws requiring minimum insurance coverage. Contact your dealer or State boating authority for information on the insurance requirements in your boating area.

Reporting Boating accidents

All boating accidents must be reported by the operator or owner of the boat to the proper marine law enforcement authority for the state in which the accident occurred. Immediate notification is required if a person dies or disappears as a result of a recreational boating accident.

If a person dies or there are injuries requiring more than first aid, a formal report must be filed within 48 hours.

A formal report must be made within 10 days for accidents involving more than \$500.00 damage or the complete loss of a boat.

A Boating Accident Report form is located near the back of this manual to assist you in reporting an accident. If you need additional information regarding accident reporting, please call the Boating Safety Hotline, 800-368-5647.

Education

If you are not an experienced boater, we recommend that the boat operator and other people that normally accompanies the operator, enroll in a boating safety course. Organizations such as the U.S. Power Squadrons, United States Coast Guard Auxiliary, State Boating Authorities and the American Red Cross

offer excellent boating educational programs. These courses are worthwhile even for experienced boaters to sharpen your skills or bring you up to date on current rules and regulations. They can also help in providing local navigational information when moving to a new boating area. Contact your dealer, State Boating Authority or the Boating Safety Hotline, 800-368-5647 for further information on boating safety courses.

Required Equipment

U.S. Coast Guard regulations require certain equipment on each boat. The Coast Guard also sets minimum safety standards for vessels and associated equipment. To meet these standards some of the equipment must be Coast Guard approved. "Coast Guard Approved Equipment" has been determined to be in compliance with USCG specifications and regulations relating to performance, construction, or materials. The equipment requirements vary according to the length, type of boat, and the propulsion system. Some of the Coast Guard equipment is described in the Safety Equipment chapter of this manual. For a more detailed description, obtain "Federal Requirements And Safety Tips For Recreational Boats" by contacting the Boating Safety Hotline 800-368-5647 or your local marine dealer or retailer.

Some state and local agencies impose similar equipment requirements on waters that do not fall under Coast Guard jurisdiction. These agencies may also require additional equipment that is not required by the Coast Guard. Your dealer or local boating authority can provide you with additional information for the equipment requirements for your boating area.

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Chapter 1:

PROPULSION SYSTEM

1.1 General

The Albemarle 41 Convertible is designed to be powered with twin diesel inboard engines. Each manufacturer of the various marine power components provides an owner's information manual with their product. It is important that you read the manuals very carefully and become familiar with the proper care and operation of the engines and drive system. A warranty registration card has been furnished with each new engine and can be located in the engine owner's manual. All information requested on this card should be filled out completely by the dealer and purchaser and then returned to the respective engine manufacturer as soon as possible.



DO NOT ATTEMPT TO SERVICE ANY ENGINE OR DRIVE COMPONENT WITHOUT BEING TOTALLY FAMILIAR WITH THE SAFE AND PROPER SERVICE PROCEDURES. CERTAIN MOVING PARTS ARE EXPOSED AND CAN PROVE DANGEROUS TO SOMEONE UNFAMILIAR WITH THE OPERATION AND FUNCTION OF THE EQUIPMENT.

1.2 Drive Systems

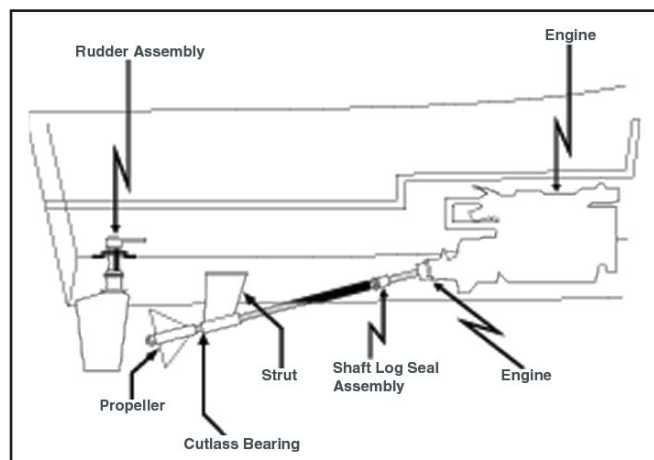
On inboard propulsion systems, all shifting and gearing components are installed inside the hull. Only the propeller shafts and associated equipment are under water. The engines are mounted below the cabin floor. A transmission, also called a gearbox, which performs desired shifting functions, is directly coupled to each engine. The propeller shaft extends through the hull and connects the transmission output coupling with the propeller. The transmissions have built-in reduction gearing. This gearing reduces the speed of the propeller in relation to engine speed.



ALWAYS RETURN THE ENGINE THROTTLE LEVERS TO THE EXTREME LOW SPEED POSITION BEFORE SHIFTING. NEVER SHIFT THE UNIT WHILE THE ENGINE SPEED IS ABOVE 1000 RPM.

All transmissions require oil or fluid of some type for lubrication. This level should be checked at the same interval as the engine oil level.

Your boat is equipped with transmissions supplied by the engine manufacturer. For details on the transmissions, refer to the engine or transmission owner's manual.



Propulsion System

1.3 Engine Exhaust System

Engine exhaust exits the rear of the boat through the exhaust system. The system consists of engine exhaust manifolds, exhaust hoses, mufflers, and thru-hull exhaust fittings.

Inboard boats use the exhaust system to expel exhaust gases and cooling water. A periodic inspection of the hoses, mufflers and related parts should be made to ensure that leaks or heat deterioration have not resulted. Periodically inspect these items for signs of deterioration or damage. Replace them as necessary.



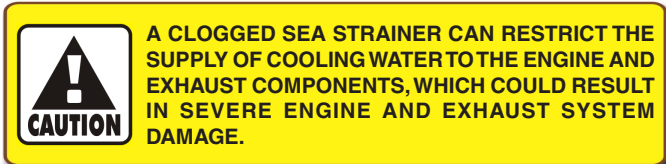
DO NOT INHALE EXHAUST FUMES! EXHAUST CONTAINS CARBON MONOXIDE THAT IS COLORLESS AND ODORLESS. CARBON MONOXIDE IS A DANGEROUS GAS THAT IS POTENTIALLY LETHAL.

1.4 Engine Cooling System

All marine engines use surface water as a cooling medium. The cooling water enters the system through a water intake in the hull and is expelled through the exhaust system. Water is pumped through the water inlets, circulated through the engine block or heat exchanger, and relinquished with the exhaust gases through the exhaust system. The water pump uses a small impeller made of synthetic rubber. The impeller and water pump cannot run dry for more than a few seconds.

Inboard engines use a thru-hull water intake scoop and strainer. This strainer is located on the hull bottom and must be kept free of mud, weeds and other debris. A ball valve is provided on each intake thru-hull. Be sure these valves are in the open position before operating the boat engines.

The strainers should be visually inspected each time the boat is hauled for accumulation of marine growth, weeds, and other foreign objects. If clogged or dirty, the strainer should be cleaned.



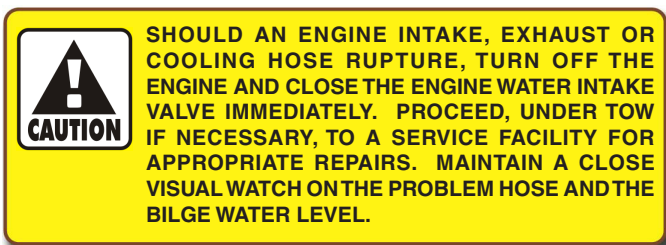
External Engine Sea Strainer

Cleaning the sea strainers

- Make sure the boat is properly blocked and supported.
- Remove the safety ring and clevis pin at the rear of the strainer.
- Open the access door and remove debris or marine growth. Thoroughly flush the screen and the inside of the strainer to remove foreign matter.
- Close the access door and install the clevis pin and safety ring.



Engine Oil Change System



Inboard boats utilize an exhaust hose to relinquish cooling water. A periodic inspection of the hose, mufflers and related parts should be made to ensure that leaks or heat deterioration have not resulted.

A “freshwater” or “closed” cooling system that is cooled by a heat exchanger and the seawater cooling system provides adequate engine cooling without exposing the internal engine cooling system to the harmful effects of surface water. This system is standard with all diesel engines. The engine owner’s manual provides additional information regarding the service and maintenance of this equipment.

1.5 Oil Change Pump

Your boat is equipped with an oil change pump system designed to change and fill the engine oil in the main engines and the generator. It is mounted in the engine compartment aft of the starboard engine.

The system is designed with a manifold system that enables one pump to service multiple engines. Oil hoses are run from the engine oil pan fitting directly to valves on the manifold. The valves are labeled and are used select the engine to be serviced. The reversible pump is controlled by a switch near the valves. In one direction it will pump oil out of the engines. In the other direction it will pump fresh oil into the engines.

Draining Oil from Engines

Place the drain/ fill hose in an empty container. Open the valve on the manifold which connects to the engine to be serviced. Switch the pump to draw oil from the engine. (Push the switch away from manifold) Repeat this process for each engine or generator to be serviced.

Filling/ Adding Oil to Engine(s):

Place the drain/ fill hose into a container of new oil. Open the valve on the manifold which connects to the engine to be serviced. Switch the pump to draw oil from the new oil container. (Push the switch toward the manifold) NOTE: Operate pump with only one valve open at a time. Be sure that a valve is open prior to pump operation. Be sure to close all valves when oil change is completed. (Handle pointed down - valve open) (Handle pointed to the side - valve closed)

Refer to the oil change system owner's manual for specific information on the system installed in you boat. It is important that you completely understand the operation of the pump and valves before using the system.

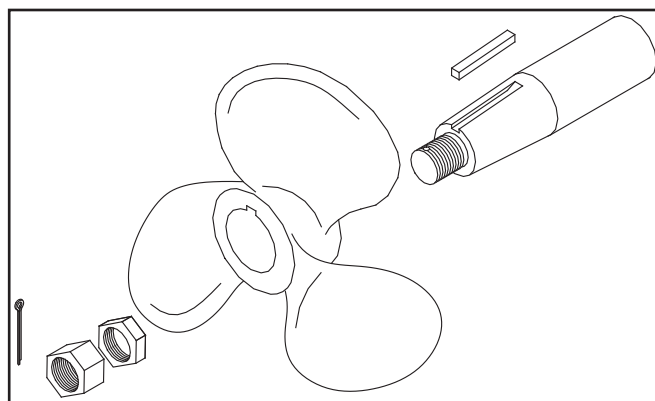
1.6 Propellers

When the boats are shipped, the propellers are factory installed. Should it be necessary to change propellers, always use an appropriate removal tool or "Prop Puller." Do not attempt removal using a hammer. Damage to the propeller, propeller shaft, or transmission can result.

A few simple steps will enable you to install a propeller. First, make sure that no burrs or rough edges exist on the shaft, key, and both keyways. Try the key into the keyways. It must slide freely into position without having side play. It might be necessary to file the key with a flat file to create the correct tolerance.

To ensure the proper fit of your propeller, follow these procedures:

- Step 1: Without the key installed, slip the propeller on the shaft by hand as far as it will go. Mark the location at the front of the hub with a dry-marker and remove the propeller.
- Step 2: Install the key in the shaft.
- Step 3: Again, slide the propeller into position by hand. Please note that the key should not extend beyond the forward edge of the propeller hub. The propeller should reach the same spot as before. If it does not, the key has probably moved up the keyway, or the key does not fit properly in one or both of the keyways.
- Step 4: Install the propeller nuts. When installing the shaft nuts, take care not to tighten them too much. Do not force the nut into a tighter position by using a hammer or extension on the arm of the wrench. Tighten the thin nut, then lock the wide nut tight against the thin nut and insert the cotter pin.



Propeller Installation

If not properly installed, the propeller will be off balance and this is a frequent cause of vibration. It could also cause the propeller hub to split.

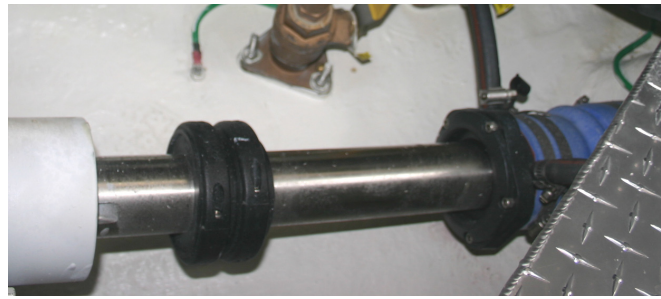


DO NOT ATTEMPT TO OPERATE THE BOAT IF THE PROPELLER DOES NOT FIT PROPERLY ON THE SHAFT. PROBLEMS SUCH AS SHAFT VIBRATION, PROPELLER HUB FAILURE OR SHAFT FAILURE MAY OCCUR.

Your boat was shipped with propellers that typically provide optimum performance for your boat. However there are factors that can affect performance and propeller requirements. Some are as follows:

- It is extremely important that the boat is propped to run at or very near the recommended top RPM with an average load. If the top RPM is above or below the recommend range, the propellers must be changed to prevent loss of performance and possible engine damage.
- Large diesel engines can be damaged and the warranty void if the boat is not propped correctly. Always consult your Albemarle or authorized engine service dealer when making changes to the propellers or if the boat does not run near the top recommended RPM.
- The addition of a Marlin or Tuna tower, heavy equipment like life rafts, personal water craft, additional coolers, etc., can will cause additional load on the engines. Consequently, different propellers will be required.

- Before changing propellers to correct boat performance problems, be sure other factors such as engine tuning, bottom and running gear growth, etc., are not the source of performance changes. You also should be sure the load conditions are those normally experienced. If the boat ran in the required RPM range when it was new and you have not added any additional gear or heavy equipment and have not damaged the propellers, there is a good chance the propellers are not the problem.



Propeller Shaft Seal



KEEP AWAY FROM THE PROPULSION MACHINERY DURING ITS OPERATION OR WHENEVER THE BOAT IS IN MOTION. MOVEMENT OF WATER PAST A PROPELLER CAN CAUSE THE PROPELLER, SHAFT AND OTHER PROPULSION MACHINERY TO ROTATE EVEN IF THAT EQUIPMENT IS NOT BEING OPERATED INTENTIONALLY.



ALWAYS BE SURE TO USE THE SHAFT REMOVAL SLEEVE AND FOLLOW THE SEAL MANUFACTURER'S INSTRUCTIONS WHEN REMOVING OR INSTALLING A PROPELLER SHAFT. IMPROPERLY REMOVING OR INSTALLING A PROPELLER SHAFT CAN PERMANENTLY DAMAGE THE SHAFT SEAL AND CAUSE IT TO LEAK.

1.7 Running Gear

Shaft Logs and Dripless Seal

The shaft logs, which are fastened into the hull bottom, allow the propeller shaft to extend and rotate through the hull. The shaft log is equipped with a special "Dripless" propeller shaft seal. To lubricate this seal, sea water from the engine cooling system is injected into the shaft seal through a hose that is connected to the engine and the shaft seal housing.

The shaft seal must have positive water injection any time the propeller shaft is rotating. The water flow to the seal should be tested annually by removing the water injection hose from the seal fitting and running the engine at idle with the transmission in neutral. There should be a positive flow of water from the hose. If no water is flowing from the hose, contact your dealer or the Albemarle Customer Relations Department before operating your boat. Some water will leak into the bilge from the hose fitting on the seal assembly during this test. The hose should immediately be reattached and the hose clamps tightened securely when the test is completed. Please refer to the seal manufacturer owner's manual for additional information on the shaft seal.

Proper performance of the shaft seal is directly dependent upon correct propeller shaft alignment. Propeller damage, a bent strut or shaft, or abnormal wear, settling, etc. are common reasons for misalignment. This can cause such problems as repeated shaft leakage, excess seal wear, shaft log and assembly damage, premature strut bearing wear, etc. It is, therefore, important that the alignment be periodically checked and adjustments are made when necessary.

Struts

The struts are the metal castings bolted to the bottom of the hull to secure the aft end of the propeller shafts. A replaceable cutlass bearing, also called a strut bearing, is used to minimize shaft wear. The strut bearing should be inspected once a year, or whenever the boat is hauled, to ensure that there has been no damage or deterioration and that the strut bearing is not worn excessively. Upon inspection of the bearing, a small amount of play between the propeller shaft and bearing, .008" to .010", is normal. This gap allows water to pass between the bearing and the shaft to lubricate the bearing surface. If the rubber bearing shows signs of deterioration or excessive wear, greater than .015" play between the bearing and the shaft surfaces, the bearing should be replaced and you should contact your Albemarle dealer. It is advisable, during lay-up periods, to insert some castor oil into the rubber bearing to keep it from "freezing" to the shaft. Never use machine oil or grease on the rubber bearing.



THE OPERATION OF THE BOAT IN HEAVILY SILTED OR POLLUTED WATER, WITH A DAMAGED PROPELLER, A DAMAGED PROPELLER SHAFT OR WITH THE ENGINE OUT OF ALIGNMENT, CAN SIGNIFICANTLY SHORTEN THE LIFE OF THE STRUT BEARING. IF YOU EXPERIENCE ANY OF THESE SITUATIONS, THE BEARING SHOULD BE CHECKED MORE FREQUENTLY.



ALWAYS CHECK THE ENGINE ALIGNMENT AFTER REPLACING THE STRUT BEARING.

Propeller Shaft Alignment

The propeller shaft coupling and the transmission coupling should be checked for proper alignment beginning with the first launching, again after 20 hours of engine operation, and annually thereafter. The alignment should especially be checked if noise or vibration occurs.

Excessive vibration, abnormal strut bearing wear, or broken propeller shaft coupling bolts are an indication of misalignment. Misalignment can also cause severe damage to the shaft log, strut, shaft and the engine transmission. Realignment should only be performed by a qualified service person.

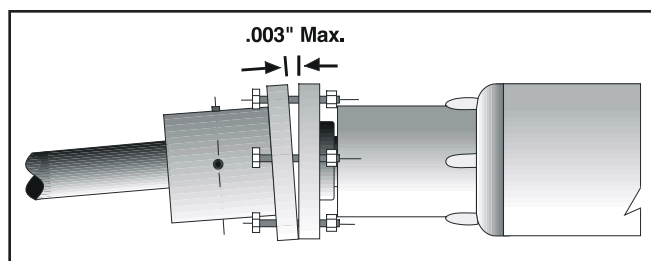
The correct procedure for checking the shaft alignment so a boat owner can determine if service work is required, is as follows:

- Step 1: Remove the bolts that secure the propeller shaft flanges.
- Step 2: Hold the propeller shaft flange firmly against the transmission flange.
- Step 3: Try to insert a .004" feeler gauge at the top, the bottom and at both sides between the flanges. If it can be easily inserted between the flanges in any area, try inserting a larger feeler gauge until you determine the amount of variance.
- Step 4: While holding the transmission flange, turn the prop shaft 90 degrees and repeat step 3. A straight shaft in proper alignment will not allow the insertion of a feeler gauge larger than .004", regardless of the prop shaft position.
- Step 5: If a gap larger than .004" is found and the gap moves as the shaft flange is rotated, the flange or the prop shaft is bent out of tolerance and must be replaced or removed and straightened. If the gap remains at the same position regardless of the propeller shaft rotated position, the engine must be realigned. At this point, an Albemarle dealer should be contacted.

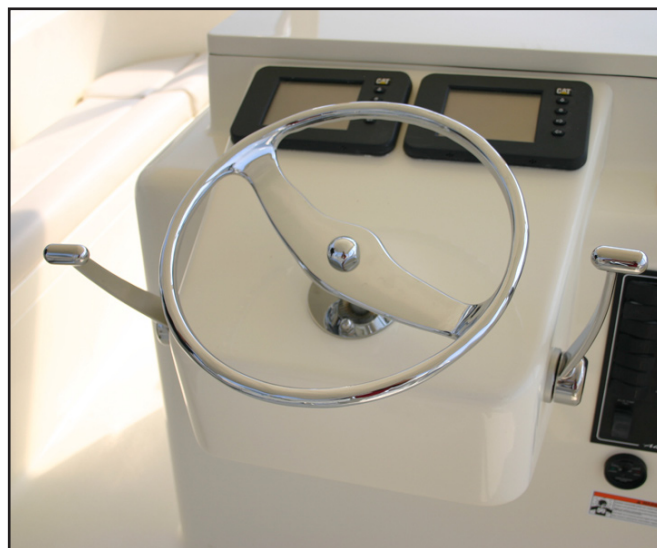
NOTE: The boat should always be at rest in the water when checking or aligning the propeller shaft.



MAKE SURE THE PROPELLER SHAFT FLANGE BOLTS ARE TIGHTENED SECURELY AFTER CHECKING THE ENGINE ALIGNMENT AND BEFORE OPERATING THE BOAT.



Propeller Shaft Coupling



Cat Marine Power Display (MPD)

NOTE: Lifting the boat with lifting straps over the prop shafts will cause the shafts to become bent. Always position lifting straps so they are clear of the running gear.

1.8 Engine Instrumentation

The helm station is equipped with a set of engine instruments and/or alarms. These instruments allow the pilot to monitor the engine operational conditions. Close observation of these instruments allows the pilot to operate the engines at the most efficient level and could save the engines from serious costly damage. The instrumentation is unique to the type of inboard motors installed on your Albemarle and is typically built into the electronic engine monitor and display system. Some or all of the following gauges may be present.

Tachometer

The tachometer displays the speed of the engine in revolutions per minute (RPM). This speed is not the boat speed nor necessarily the speed of the propeller. The tachometer may not register zero with the key in the "OFF" position.



NEVER EXCEED THE MAXIMUM RECOMMENDED OPERATION RPM OF THE ENGINE. MAINTAINING MAXIMUM, OR CLOSE TO MAXIMUM RPM FOR EXTENDED PERIODS CAN REDUCE THE LIFE OF THE ENGINE.

Temperature Gauge

The temperature gauge indicates the temperature of the engine cooling system. A sudden increase in the temperature could signal a blocked cooling passage or a water pump malfunction.



CONTINUED OPERATION OF AN OVERHEATED ENGINE CAN RESULT IN ENGINE SEIZURE. IF AN UNUSUALLY HIGH TEMPERATURE READING OCCURS, SHUT THE ENGINE OFF IMMEDIATELY. THEN INVESTIGATE AND CORRECT THE PROBLEM.

Oil Pressure Gauge

The oil pressure gauge monitors the engine lubrication system pressure. The oil pressure indicated when the engine is new is usually the reference for normal oil pressure for that engine. A drop in oil pressure is a possible indication of oil pump problems, a leak or fuel diluted oil.

Fuel Gauge

The fuel gauge indicates the amount of fuel in the fuel tank. This gauge is merely a relative indication of the available fuel supply and not a calibrated instrument.

Voltmeter

The voltmeter displays the voltage for the battery and the charging system. The normal voltage is 11 to 12.5 volts with the engine off, and 13 to 14.5 volts with the engine running.

Hour Meter

The hour meter keeps a record of the operating time for the engine. The hour meters are typically built into the engine electronic monitor and display panel.

Rudder Position Indicator (Optional)

The rudder position indicator shows the current position of the rudders. The rudder indicator gauge is not a calibrated instrument and is intended to show the approximate position of the rudders, primarily as a reference when maneuvering in tight quarters. Wind and currents will cause a deviation in the rudder indicator reading.

Depth Gauge (Optional)

The depth gauge indicates the depth of the water below the bottom of the boat.

Fuel Management

Fuel management systems are optional and could be installed on your boat. The fuel management gauge is used to moni-

tor the gallons per hour and also total gallons used. Some fuel management systems are built into the engine electronic monitor and display panels. If you have a fuel management system installed on your boat, please refer to the engine or fuel management manual for information on that system.

Engine Alarm

Most inboard engines are equipped with an audible alarm system mounted in the helm area that monitors selected critical engine systems. The alarm will sound if one of these systems begins to fail. Refer to the engine owner's manual for information on the alarms installed with your engine.

If an engine alarm sounds, immediately shut off the engine until the problem is found and corrected.

Cat Marine Power Display (MPD)

The Cat Marine Power Display for each engine is installed with most Caterpillar engines. It is a simple to operate, self-contained engine monitoring and display system that provides more information to the operator than previously available engine monitoring systems. It monitors RPM, oil pressure, coolant temperature, battery voltage, turbo boost pressure, transmission temperature, transmission pressure, fuel consumption and water in the fuel filter. If there is a problem with one of these systems, it will sound an alarm and a diagnostic flag appears on the screen until the problem is found and resolved.

A configuration screen and sealed control buttons allow the operator to select different users, English or Metric units, and the type of display format. Screen format options include simulated gauge, digital, and bar graph. Additionally, you can view current engine totals for the current trip or the life of the engine. Refer to the Cat Marine Power Display owner's manual for detailed information on the features and operation of MPD.

Compass

The compass is on the forward flybridge, forward of the helm. To adjust the compass for your area, read the instructions on "Compass Compensation" given to you in the literature packet. The compass cannot be adjusted accurately at the factory because it must be compensated for the influence of the electrical equipment and electronics unique to your boat. Therefore, the compass should be adjusted by a professional after the electronics are installed and before operating the boat.

Instrument Maintenance

Electrical protection for instruments and ignition circuitry is provided by circuit breakers located on the engines. The ignition switch and instrument wire connectors should be sprayed periodically with a contact cleaner/lubricant. The ignition switch and all instruments, controls, etc. should be protected from the weather when not in use. Excessive exposure can lead to gauge and ignition switch difficulties.

Chapter 2:

HELM CONTROL SYSTEMS

2.1 General

The helm controls consist of three systems: the engine throttle and shift controls, the steering system, and the trim tab control switches. These systems provide the operator with the ability to control the direction and attitude of the boat from the helm station.

Each manufacturer of the control components provides an owner's manual with its product. It is important that you read the manuals and become familiar with the proper care and operation of the control systems.

2.2 Engine Throttle and Shift Controls

Your boat is equipped with electronic engine controls. The shift and throttle control features may vary depending on the engines used. The following control description is typical of most engine and control installations. Refer to the engine or control manuals for specific information on the controls installed on your boat.

The custom flybridge helm pod is designed for single lever side mount electronic engine throttle and shift controls. If your boat is equipped with an optional tower, the tower station will typically be equipped with a binnacle style control with a single lever for each engine. The electronic control system consists of four major components: the helm throttle and shift controls, the electronic control head and key pad, the control processor, and the throttle and shift control servos on the engines. The system is completely electronic and there are no cables. Movement of the helm control arm sends a signal to the control processor, located in the engine compartment, that operates the engine throttle or transmission control lever. The controls have a single lever for each engine that operates as a gear shift and a throttle. General operation will include a position for neutral (straight up and down or slightly aft of vertical), a forward position (the 1st detent forward of neutral), and a reverse position (the 1st detent aft of neutral). Advancing the control lever beyond the shift range advances the throttle in forward or reverse. Each control is equipped with a means of permitting the engine to be operated at a higher than idle RPM while in neutral for cold starting and warm-up purposes. The control levers are equipped with adjustable control head detent and friction settings.



Flybridge Engine Controls and Helm



Flybridge Engine Control Head and Control Power Switch

The control head key pad has integrated switches and indicator lights which allow the operator to control all aspects of the boat's propulsion system. The most common features activated or monitored by the keypad are:

- Gear lockout, which allows the engine RPM to be advanced in neutral safely.
- High idle and slow speed modes which allow the operator to make small adjustments to engine speed without moving the main control levers.

- Battery voltage warning indicator that warns the operator of high or low voltage supplied to the system.
- System diagnostic warning indicator that monitors many parameters and warns you when conditions fall outside suitable operating range.
- Gear position indicating lights that let you know that the transmission has shifted into the appropriate gear .
- Audible neutral indicator. An audible alert sounds when the transmission has been shifted into neutral.
- Control head light dimmer that allows you to adjust the control head lights for each station individually.
- Station transfer that allows the operator to transfer control from one station to another with the push of a button.
- An engine synchronization feature that automatically keeps both engines at the same RPM when this feature is activated.
- Trolling valve control, which enables you to control the speed of the propeller with the engines idling if your transmissions are equipped with this feature.

These features and others not mentioned require specific procedures to activate and operate them properly. Some of the procedures are unique to the engines, drive system and other options installed on your boat. It is essential that you read the owner's manual for the controls and be completely familiar with their operation before using your boat.

2.3 Engine Synchronizer

During most operations of a twin engine boat, it is advantageous for both engines to be operated at the same RPM. This reduces noise and vibration and can increase engine efficiency. Setting the throttles so that the engines are running the same RPM (synchronized) can be done by listening to the engine sounds, or with the engine synchronizer built into the control system. A light in the control head key pad will indicate when this feature has been activated. Attempting to synchronize the engines solely by using the tachometer readings or control lever placement generally will not work. When the engines are in proper synchronization, the throttle levers may not necessarily be even. Please refer to the engine control owner's manual for detailed information on the operation of the engine synchronizer.

2.4 Neutral Safety Switch

Every control system has a neutral safety switch. This device prohibits the engine from being started while the shift lever is in

any position other than the neutral position. If the engine will not start, slight movement of the shift lever may be necessary to locate the neutral position and disengage the safety cutout switch. Control system adjustments may be required to correct this condition, should it persist. See your Albemarle dealer for necessary control adjustments.

The neutral safety switch should be tested periodically to ensure that it is operating properly. To test the neutral safety switch, move the shift levers to the forward position with the engines off. **Make sure the throttle levers are set to the idle position.** Activate the starter switch for each engine just long enough to briefly engage the starter. **Do not hold the starter switch in the start position long enough to start the engine.** The starter should not engage for either engine. Repeat this test with the shift levers in reverse and the engine throttles at idle. Again, the starter should not engage for either engine. If the starter for either engine engages with the shift controls in any position other than the neutral position, then the neutral safety switch is not functioning properly and you should contact your dealer and have the neutral safety switch repaired by a qualified technician before using your boat. If an engine starts in gear during this test, immediately move the shift levers to the neutral position and turn the engines off.



IN SOME SITUATIONS, IT MAY BE POSSIBLE TO ACCIDENTALLY START THE ENGINES IN GEAR WITH THE THROTTLES ABOVE IDLE IF THE NEUTRAL SAFETY SWITCHES ARE NOT OPERATING PROPERLY. THIS WOULD CAUSE THE BOAT TO ACCELERATE UNEXPECTEDLY IN FORWARD OR REVERSE AND COULD RESULT IN LOSS OF CONTROL, DAMAGE TO THE BOAT, OR INJURY TO PASSENGERS. ALWAYS TEST EACH NEUTRAL SAFETY SWITCH PERIODICALLY AND CORRECT ANY PROBLEMS BEFORE USING THE BOAT.

2.5 Steering System

The steering system in your boat is a power assisted, hydraulic system. Hydraulic power steering uses a hydraulic pump driven by the starboard engine to provide the "POWER" for the power steering system. A manual hydraulic steering system consisting of a standard helm and a hydraulic steering cylinder, (fitted with an integral servo cylinder and a power steering valve) supplies the "control" portion of the power steering system.

Under normal conditions, with engines running, a pressurized hydraulic oil supply is in a standby mode, ready to be directed to the steering cylinder as dictated by the steering wheel, servo cylinder and power steering valve. Turning the steering wheel left or right causes the power system to go from 'standby' into 'operating' mode and pumps the fluid in the hydraulic hoses

which activates the hydraulic cylinder causing the rudders to turn. A slight clicking sound may be heard as the wheel is turned. This sound is the opening and closing of valves in the helm unit and is normal. In the event of a power source failure, hydraulic oil is automatically pumped directly from the steering helm into the servo and steering cylinder, providing the helmsman with manual backup steering

An engine room mounted oil reservoir allows easy system fill and assists the in-line oil cooler in cooling the hydraulic oil. An in-line oil filter helps protect the steering system components against contaminants. It is important that the fluid level in the reservoir is checked frequently and maintained at or near the maximum level and that the pressure in the reservoir is between 25 and 35 PSI, as indicated by the gauge on the top of valve.

Refer to the manufacturer owner's manual for specific information on the operation and maintenance for the steering system.

Dual engine inboard boats have two rudders which are offset from the propeller shaft center line to allow shaft removal without having to remove the rudders. They are coupled together at the tiller arms by a tie bar. The rudders are toed-in $\frac{1}{4}$ " at the front to provide maximum stability on straight ahead runs and proper tracking through corners. Rudder or steering system damage may require the rudders to be realigned.

2.6 Trim Tabs

The trim tabs are recessed into the hull on the transom. Dual rocker switches in the helm switch panel, below the helm, are used to control the trim tabs. The switches are labeled and control bow up and down movements. They also control starboard and port up and down movements. Bow up and bow down will control the hull planing attitude, while port and starboard up and down provides control for the hull listing.

Before leaving the dock, make sure that the tabs are in the full "UP" position by holding the control in the bow up position for ten (10) seconds.

Always establish the intended heading and cruise speed before attempting to adjust the hull attitude with the trim tabs. After stabilizing speed and direction, move the trim tabs to achieve a level side to side running attitude being careful not to over trim.

After depressing a trim tab switch, always wait a few seconds for the change in the trim plane to take effect. **Avoid depressing the switch while awaiting the trim plane reaction.** By the time the effect is noticeable the trim tab plane will have moved too far and thus the boat will be in an overcompensated position.



Trim Tab Switch

When running at a speed that will result in the boat falling off plane, lowering the tabs slightly, bow down, will improve the running angle and operating efficiency. Too much bow down tabs can reduce operating efficiency and cause substantial steering and handling difficulties.

Be extremely careful when operating in a following sea. The effect of trim tabs is amplified under such conditions. Steering and handling difficulties can result from improper trim tab usage, particularly in a following sea. Always raise the tabs to the full bow up position in these conditions.

When running at high speeds be sure that the tabs are in the full "UP" position. Only enough trim plane action should be used to compensate for any listing. Trim tabs are extremely sensitive at high speeds. Adjust for this and be prepared to slow down if difficulties arise.

When running into a chop, a slight bow down attitude will improve the ride. Be careful not to over trim. Handling difficulties may result.

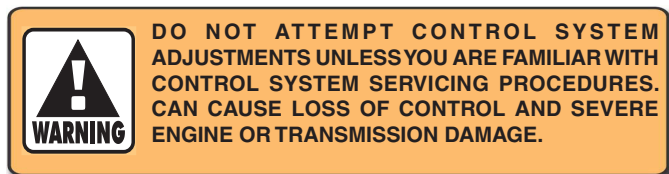
2.7 Control Systems Maintenance

Control Maintenance

Periodic inspection of the control systems and all connections should be made. Signs of rust, corrosion, wear, or other deterioration should be serviced immediately. Generally, periodic lubrication of all moving parts and connections with a light waterproof grease is in order.

Lubrication should be performed as often as necessary to keep the system operating smoothly.

Control system adjustments may become necessary. If adjustment becomes necessary, see your Albemarle dealer.



Steering Cylinder and Rudder Port

Steering System Maintenance

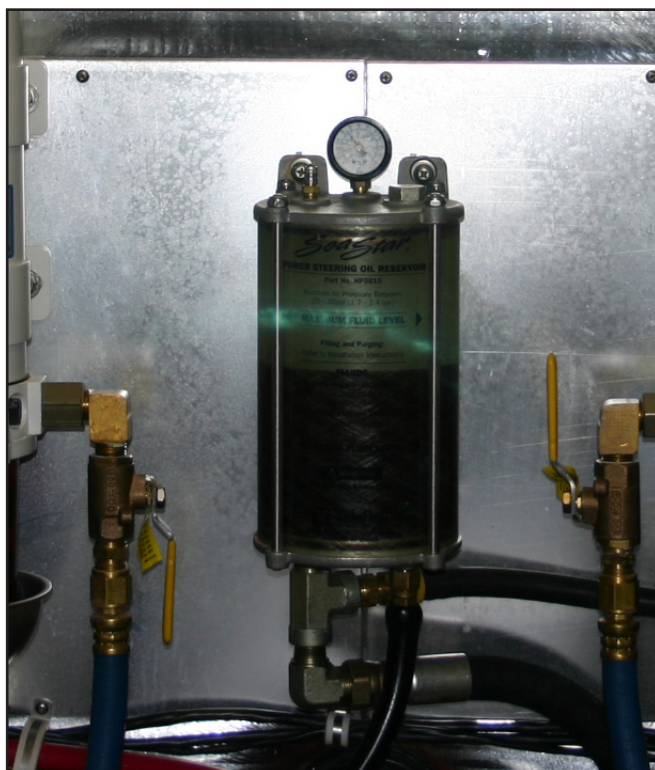
A periodic inspection of all steering hoses, linkage and helm assemblies should be made. Signs of corrosion, cracking, loosening of fastenings, excessive wear, or deterioration should be corrected immediately.

Generally, periodic lubrication of all moving parts and connections with a light waterproof grease is in order. Failure to do so could lead to steering system failure that would result in loss of control.

Check the hydraulic hoses and fittings for chaffing, rub marks and leaks. Replace if necessary.

The power steering system is equipped with a spin on cartridge style oil filter that keeps the system free from contaminants. The filter should be changed at 50 hours and once a year thereafter.

The steering fluid level in the reservoir should be checked frequently and maintained at or near the maximum level. The pressure in the reservoir also should be checked and kept at 25 to 35 PSI. If steering fluid is required, make sure you relieve the pressure in the reservoir and follow the instructions in the steering system owner's manual exactly. A bicycle pump can be used to pressurize the system.



Steering System Reservoir

When new, or after repairs, hydraulic steering systems may need to have all air purged from the system. Only use hydraulic steering fluid recommended by the steering system manufacturer. Difficult steering and premature seal failure can result if the wrong fluid is used in the steering system. Review the information provided by the steering system manufacturer for proper specifications and details on system service and maintenance.

The boat also should be inspected periodically for leakage around the rudder ports. The rudder ports contain a lip seal that provides 100% water tight operation. The seals are self-lubricating and require no maintenance. If a rudder port is

found to be leaking, please contact your Albemarle dealer or the Albemarle Customer Service Department.

If the rudders have to be removed for any reason, the red plastic seal protector must be used to prevent the keyway in the rudder shaft from damaging the lip seal in the rudder port. The seal protectors are shipped with the boat. Always inspect the rudder ports for leakage when the boat is launched and at least once a month thereafter.

Trim Tab Maintenance

Marine growth can interfere with the proper operation of the trim tab planes and actuators. To reduce problems due to marine growth, always return the trim tabs to the full “UP” position after operating the boat and periodically inspect and clean marine growth from the actuators and planes.

The trim tab fluid should be checked often. Keep the fluid level between the marks on the trim tab pump reservoir.

If your boat will be left in saltwater for extended periods, it will be necessary to install zinc anodes on the trim tab planes to prevent galvanic corrosion. Galvanic corrosion is the corrosion process occurring when different metals are submerged in an electrolyte. Sea water is an electrolyte and submerged metal components must be properly protected. The anodes will need to be monitored and changed when they are 75% of their original size.

Refer to the trim tab owner’s manual for additional maintenance information, fluid specifications and operating instructions.



Trim Tab Pump in Stern Bilge

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Chapter 3:

FUEL SYSTEM

3.1 General

The fuel system used in Albemarle boats is designed to meet or exceed the requirements of the U.S. Coast Guard, the Boating Industry Association, and The American Boat and Yacht Council in effect at the time of manufacture.

All fuel systems have been factory inspected and pressure tested in accordance with regulations in effect at the time of manufacture. This inspection assures that the system is air tight, leak proof and safe. It is the responsibility of the purchaser to maintain it in that condition. Make frequent inspections to assure that no deterioration or loosening of connections is resulting from vibration.

Fuel Withdrawal Tubes

The fuel withdrawal tubes are positioned in the fuel tank to achieve optimum fuel usage, fuel line routing, etc. At certain speeds and hull trim angles, the fuel supply at the withdrawal tank location can increase or decrease accordingly. Be extremely careful when attempting to operate the boat when low on fuel. Though some fuel may be in the tank, the relative trim angle of the boat may cause the fuel to flow away from the withdrawal tubes.

There is an on/off valve for each supply line located on the fuel tank near the withdrawal tube. The valves provide a means to turn off the fuel supply when servicing the fuel system. An access hatch in the engine compartment steps provides access to the fuel valves, fuel gauge sending unit and other fuel system components.

Fuel Gauge

This indicates the amount of fuel in the tank. Due to the mechanical nature of the fuel sender, variations in readings during various speeds of operation may occur. This system is merely a relative indication of the available fuel supply and not a calibrated instrument. A fuel gauge is located at the helm.

Fuel Fill

A fuel fill deck plate is located on the starboard gunwale, and is marked "DIESEL." The fuel fill is opened by turning it counter clockwise with a special key. After fueling, install the fuel cap and tighten with the key. Be sure to use the proper type and grade fuel. Refer to the engine owner's manual for additional information.

Note: Do not overtighten the fuel cap. If the cap is overtightened, the O-ring seal could be damaged allowing water to contaminate the fuel system.



Fuel Fill



Fuel Withdrawal Tubes and Valves



DO NOT CONFUSE FUEL FILL DECK PLATES WITH THE WATER OR WASTE FILL DECK PLATES. THESE PLATES ALSO ARE LABELED ACCORDINGLY. IF DIESEL FUEL IS ACCIDENTALLY PUMPED INTO THE WATER OR WASTE TANK, DO NOT ATTEMPT TO PUMP IT OUT YOURSELF. WATER AND WASTE PUMPS ARE NOT DESIGNED TO PUMP FUEL AND A FIRE OR EXPLOSION COULD RESULT. CONTACT YOUR DEALER OR THE ALBEMARLE CUSTOMER SERVICE DEPARTMENT FOR ASSISTANCE IN HAVING THE FUEL PROFESSIONALLY REMOVED.

3.2 Diesel Engine Fuel System

The fuel system on your boat has one fuel tank that fills from the starboard gunnel. The starboard engine is supplied by the starboard fuel line and the port engine is supplied by the port fuel line.

Diesel engines circulate much more fuel than they consume to cool and lubricate the fuel injection system. There is a fuel supply and return line for each engine and the generator. The return lines return unused fuel to the fuel tank.

Proper diesel engine operation requires a good supply of clean, dry diesel fuel. Improper marina fuel storage techniques, limited boat usage, etc. can cause the fuel to become contaminated. Periodically, it may be necessary to pump accumulating water and contaminated fuel from the bottom of the fuel tank. If the fuel system on your boat becomes contaminated, contact your dealer or the Albemarle Customer Service Department for assistance.

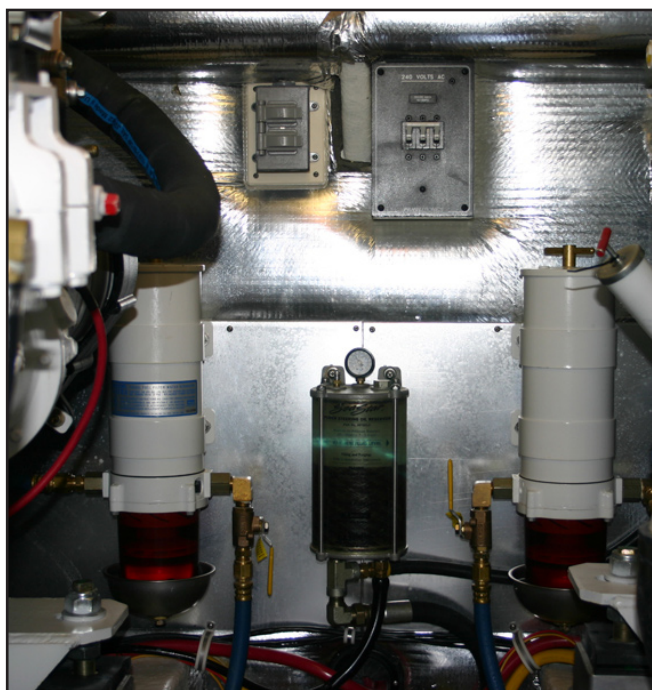
Algae can grow in the accumulated water in diesel fuel tanks. This condition is most prevalent in warm climates. Periodically adding a high quality diesel fuel additive containing an algacide may be required to control algae in your boating area. Please contact your Albemarle dealer or engine manufacturer for additional information regarding fuels and additives.

Note: Do not allow the boat to sit unused for an extended period with the fuel tanks less than full. Changes in temperature and weather conditions can cause condensation in fuel tanks that are less than 3/4 full.

Diesel Fuel Filters

The diesel fuel filters are installed in the engine compartment near the engines. The filters are equipped with a sensor that will light a warning light in the helm if too much water accumulates in the filter. A shut-off valve is located near each filter. The fuel line shut-off valves should always be closed before servicing the fuel filters.

Check the filters for water before each use and replace the filter cartridge as needed. Water is drained from the filters by placing a cup under the filter and draining through the petcock at the bottom of the filter until clean fuel flows. It is particularly important to monitor the condition of the fuel filters frequently because diesel engines circulate much more fuel than they consume. Because of the volume of fuel that flows through the filters, the elements must be changed at least twice a season or more frequently depending on the quality of the fuel and the hours run. Replace with a 30 micron filter cartridge and follow the filter or engine manufacturer's instructions for cleaning and replacing the filter elements.



Engine Fuel Filters on Forward Engine Room Bulkhead

Note: Diesel fuel systems may need to be primed after servicing. Refer to the engine owner's manual for information on priming the fuel system.

3.3 Generator Fuel System

The generator fuel system is much like the primary fuel engine fuel system. There is a fuel supply and return line to return unused fuel back to the fuel tank. A fuel shut-off valve is located on the fuel line near the filter. The valve should always be closed before servicing the fuel filter.

The generator withdrawal tube is shorter than the main engine withdrawal tubes to prevent the generator from consuming the reserve fuel. Therefore, the generator will run out of fuel if the fuel level drops below 1/4.

A water separating fuel filter located near the generator, below the engine compartment steps. Water is drained from the filter by placing a cup under the filter and draining through the petcock at the bottom of the filter until clean fuel flows. The filter should be checked for water before each trip and the cartridge replaced when the main engine fuel filters are changed.

3.4 Fueling Instructions



FUEL IS VERY FLAMMABLE AND CAN CAUSE A FIRE OR AN EXPLOSION. BE CAREFUL WHEN FILLING THE FUEL TANKS. NO SMOKING. NEVER FILL THE TANKS WHILE THE ENGINES ARE RUNNING. FILL THE FUEL TANKS IN AN OPEN AREA. DO NOT FILL THE TANKS NEAR OPEN FLAMES.



TO PREVENT DAMAGE TO THE FUEL SYSTEM, USE ONLY A GOOD GRADE OF DIESEL FUEL FOR DIESEL ENGINES. REFER TO THE ENGINE MANUFACTURER OWNER'S MANUAL REGARDING FUEL REQUIREMENTS FOR YOUR ENGINE.



SPILLED FUEL CAN CAUSE A FIRE OR AN EXPLOSION. MAKE SURE YOU DO NOT SPILL ANY FUEL. IF A SMALL AMOUNT OF FUEL IS SPILLED ON THE FIBERGLASS, USE A CLOTH TO REMOVE THE FUEL, AND PROPERLY DISPOSE OF THE CONTAMINATED CLOTH. IF FUEL IS SPILLED ON THE WATER, EXERCISE EXTREME CAUTION. FUEL FLOATS ON THE SURFACE OF THE WATER, AND CAN IGNITE. IF FUEL IS SPILLED INTO THE WATER, IMMEDIATELY EVACUATE THE AREA AND NOTIFY THE MARINA AND THE PROPER OFFICIALS.

To fill the fuel tank at a marina, follow this procedure:

1. Make sure all switches, including the blower, are in the "OFF" position.
2. Make sure the boat is securely moored.
3. Make sure all passengers leave the boat.
4. The engines should be turned off.
5. The windows and deck hatches should be closed.
6. Estimate how much fuel is needed.

Note: When the fuel tank is full, fuel will come out through the fuel tank vent. The fuel tank vent is located on the side of the boat. Monitor the vents closely while fueling to prevent fuel from spilling into the water.

5. A special key to open the fuel caps is supplied. Turn the key counter clockwise to open the cap.
7. Remove the cap.
8. Put the nozzle in the fuel opening.



STATIC ELECTRICITY CAN BE GENERATED WHILE FUELING AND CAN CAUSE A FIRE OR EXPLOSION. TO PREVENT STATIC SPARKS WHEN FILLING THE TANK, MAKE SURE THE NOZZLE IS IN CONTACT WITH THE FUEL OPENING.

9. Fill the tank slightly less than the rated capacity to avoid spilling fuel out of the vent or the fuel fill and to allow for expansion.
10. Remove the nozzle.
11. Install the fuel cap.
12. Check the fuel compartment and below the deck for fuel odors. If you smell fuel, do not start the engine. Investigate and correct any problems before using the boat.

3.5 Fuel System Maintenance

Periodically inspect all connections, clamps and hoses for leakage and damage or deterioration. Replace as necessary. Spray the valves, tank fuel gauge sender and ground connections with a metal protector.

Frequently inspect and lubricate the fuel fill cap O-ring seal with petroleum jelly or silicone grease. The O-ring seal prevents water from entering the fuel system through the fuel fill cap and it should be replaced immediately if there is any sign of damage or deterioration.

Contaminated fuel may cause serious damage to your engines. The filters must be checked for water and other contamination frequently. The filter elements must be changed at least twice a season or more frequently depending on the type of engine and the quality of the fuel. Please refer to the engine or fuel filter manufacturer's instructions for information on servicing and replacing the fuel filter elements.

Algae can grow in the accumulated water in diesel fuel tanks. This condition is most prevalent in warm climates. Periodically adding a high quality diesel fuel additive containing an algaecide may be required to control algae in your boating area. Since algae also can grow in accumulated water in the fuel filters, it is important to run the main engines and the generator for at least 30 minutes after the algaecide has been added so it will be circulated throughout the fuel system. This is even more important during periods of storage or if the boat is not used enough to require refueling at least once a month.

Severe algae in a diesel fuel system can be extremely difficult and expensive to clean. You should be diligent in monitoring the fuel system by checking the filters for water frequently and being alert for signs of algae in fuel that is drained from the filters. Most algae appears as black, carpet like, fibers suspended in fuel and water drained from the filters. Severe cases of algae will produce a black jelly like substance that quickly clogs the filters and starves the engines for fuel.

Please contact your Albemarle dealer or engine manufacturer for additional information regarding fuels and additives.

Chapter 4:

ELECTRICAL SYSTEM

4.1 General

Your Albemarle is equipped with 240/120-volt AC and 12-volt DC electrical systems. The AC system can draw current from one of two sources, either shore power outlets at dock side or the generator. The DC system draws current from on board batteries.

The 12-volt batteries in your boat are usually the lead-acid type. They will require similar maintenance as those found in automobiles.

4.2 12-Volt System

The 12-volt system is a standard marine system. There are three, two battery banks, one for the starboard engine, one for the port engine and one for the house circuits. The batteries themselves can be charged by the engines or by the battery charger when hooked to shore power or when operating the optional generator. An automatic battery isolator manages the charging current for the 12-volt system whenever the engines are running. The isolator automatically senses the condition of each battery bank and directs the available current to the batteries that require charging. The system is equipped with a battery parallel feature that will connect both engine starting battery banks in parallel for extra battery power while starting the engines. The battery parallel switch is activated by a momentary rocker switch located in the helm switch panel. When the switch is pressed, a relay is engaged that connects both engine starting battery banks, when the switch is released, the relay is deactivated and the battery banks are isolated.

Most 12-volt power is distributed to the 12-volt accessories through individual circuit breakers located in the 12-volt breaker panel in the cabin. Main breakers located near the house battery switch protects the system from an overload. Other circuit breakers, located in the battery switch panel, protect the circuit for the optional windlass, the main DC power, the engine hatch and the automatic switches for the aft and forward bilge pumps. The engine main breakers located on each engine protects the ignition systems and gauges. Some 12-volt accessories are operated directly by a circuit breaker in the cabin breaker panel while others are operated by a switch fed by the panel breakers. Most of the 12-volt accessories on the deck and in the cockpit are operated by switches in the helm and accessory switch panels.



Engine Battery Switches, Parallel Relay and Push to Reset Circuit Breakers



House Battery Switch



PROPER FUSE OR BREAKER PROTECTION MUST BE PROVIDED FOR ALL 12-VOLT EQUIPMENT ADDED. DO NOT OVERLOAD THE ACCESSORY CIRCUIT BREAKERS OR OTHER CIRCUITRY THROUGH ADDITIONAL 12-VOLT EQUIPMENT.

Battery Switches

There are three “ON” - “OFF” battery switches located on the battery switch panel in the equipment compartment below the cabin. The port battery switch activates the port engine, the starboard battery switch activates the starboard engine and the third battery switch, on a separate panel activates the 12-volt breaker panel in the cabin and all other 12-volt accessories. Make sure that all three switches are activated whenever the engines are running to ensure that all 12-volt accessories will operate when they are needed.

The automatic isolator controls the charging of all three battery banks whenever one or both of the engines is operating. When one or both engines is started, the engine alternators start to recharge the batteries. This charging current passes through the isolator sensing circuit. This circuit senses the charge and connects the charging current for the “House” battery bank in parallel with the engine starting battery banks. Thus the charge from the engines is split between the batteries, with the lowest battery bank receiving the most charge. When the engines are turned off, the charging stops and the sensing circuit disconnects the “House” battery bank from the cranking batteries, thereby automatically isolating the battery banks from one another.

Note: The diesel engines may have induction air heaters to reduce smoke and improve cold weather starting. These heaters cycle on and off every 20 to thirty seconds while the engines are warming up and will cause the volt meters to fluctuate. The fluctuation is particularly noticeable at idle. Once the engines are started, monitor the volt meters carefully. If one or both of the volt meters read below 12 volts after one minute, raise the engine RPM to 1200 for several seconds then return them to idle. This will “excite” the alternators and cause them to activate.

When in port or at anchor, the switch that supplies the port engine and the switch that supplies the starboard engine should be off. Only the battery switch that activates the “House” battery bank should be on. This will keep the engine starting battery banks in reserve for starting the engines. All three battery switches should be in the “OFF” position when leaving the boat unattended.

Note: Current is supplied to the high water alarms and the automatic float switches for the bilge pumps when the batteries are connected and the battery switches are off.

The DC electrical system on your boat is designed for wet cell, marine batteries. Do not attempt to use gel cell, absorbed wet mat or other non wet cell batteries. The engine charging system and the battery charger are not designed to recharge these batteries which could cause unusually short battery life, engine starting problems and damage to the DC charging systems. You also should not mix the size or brand of the wet cell batteries. Always consult your Albemarle dealer before changing the type of batteries in your boat.

12-Volt Accessory Switch Panels

The main accessory switch panel and the engine switch panel is located at the helm. The circuit breakers that protect the accessories and activate the engine starting circuit are located in cabin breaker panel.



Helm Switch Panel

The following is a description of the accessories controlled by the engine switch panel:

Port Ignition Switch

The port ignition switch is an on off switch, located in the bottom side of the helm pod below the steering wheel, which activates the port engine. The switch has an off and on position. A momentary start switch is located next to the ignition switch. To start the engine, make sure the shift lever is in the neutral position and your hand is on the control lever in the idle position. Turn the ignition switch to on and activate the start switch. When the engine starts release the switch. Stop the engine by pressing the ignition switch to the off position. It is protected by a breaker located in the cabin breaker panel and a main breaker located on the engine.

Starboard Ignition Switch

The Starboard ignition switch is an on/off switch, located in the bottom side of the helm pod below the steering wheel, which activates the Starboard engine. The switch has an off and on position. A momentary start switch is located next to the ignition switch. To start the engine, make sure the shift lever is in the neutral position and your hand is on the control lever in the idle position. Turn the ignition switch to on and activate the start switch. When the engine starts release the switch. Stop the engine by pressing the ignition switch to the off position. It is protected by a breaker located in the cabin breaker panel and a main breaker located on the engine.

Trim Tab Switch

Located in the bottom side of the helm pod below the steering wheel. This switch controls the trim tab planes located on the transom of the boat. Please refer to Chapter 2 for detailed information on the operation of the trim tab controls.

The following is a description of the accessories controlled by the main accessory switch panel:

Horn

Activates the boat horn.

Engine Slow

Activates the circuit in the control system that automatically slows the propellers for operating in marinas or other areas where slow speed and no wake is required.

Blowers

This switch supplies electrical current to the blower that provides ventilation and cooling to the engine compartment while operating the main engines or the generator.

Windlass Switch (Optional)

This switch controls the optional windlass which is mounted to the deck directly above the rope locker. It is protected by a circuit breaker of the type and rating recommended by the windlass manufacturer that is located in the cabin breaker panel.

Spreader Lights (Optional)

Activates the 12-volt spreader lights that illuminate the cockpit.

Cockpit Lights

Activates the lights that illuminate the cockpit area.

Anchor/Running Lights

The switch is a three-position switch. The middle position is "OFF." Moving the switch in one direction will activate the navigation lights. Moving the switch in the opposite direction activates the anchor light.

Battery Parallel

Activate the circuit that will connect both engine starting battery banks in parallel for extra battery power while starting the engines. When the switch is pressed, a relay is engaged that connects both engine starting battery banks, when the switch is released, the relay is deactivated and the battery banks are isolated.

Electronics

Activates the circuit for the electronics.

Electronics

Activates the circuit for the electronics.

Overhead Lights

Activates the cockpit lights that are built into the hardtop.

Overhead Lights

Activates the cockpit lights that are built into the hardtop.

Fishbox Pump Out

This switch activates the macerator pump that pumps out the fishbox. It is a momentary switch because the pump can only run dry for a few seconds and must be turned off as soon as the pumping is complete. The pump is protected by a circuit breaker in the cabin breaker panel.

Bilge Pump Fwd

Activates the forward bilge pump which is installed in the bilge below the cabin floor. The pump moves water out through the thru-hull fitting in the hull. To start the pump manually, place the switch in the "ON" position.

Bilge Pump Mid

Activates the forward bilge pump which is installed in the engine compartment bilge. The pump moves water out through the thru-hull fitting in the hull. To start the pump manually, place the switch in the "ON" position.

Bilge Pump Aft

Activates the stern bilge pump which is installed in the rear center of the bilge. The pump moves water out through the thru-hull fitting in the hull. To start the pump manually, put the switch in the "ON" position.

Note: The bilge pumps will start automatically when there is sufficient water in the bilge to activate the float switch or engage the fully automatic pumps. The float switch and automatic pumps are protected by breakers located in the battery switch panel and are always supplied current when the batteries are connected.

Additional Accessory Switch Panels:

Additional switch panels are located in various locations in the cockpit. Most of these panels are equipped with a circuit breaker for each switch. The following is a description of additional panels that may be on your Albemarle and the accessories they control:

Cockpit Switch Panel

Washdown

Located in the cockpit switch panel next to the flybridge ladder. Supplies 12-volt electrical current to the raw water pump pressure switch located on the pump. The pressure switch automatically controls the water pump when the system is activated and properly primed. It is protected by the circuit breaker in the panel and an automatically resetting breaker on the pump motor or an in-line fuse near the pump.

Livewell

Located in the cockpit switch panel next to the flybridge ladder. Supplies 12-volt electrical current to the livewell pump pressure switch located on the pump. The pressure switch automatically controls the water pump when the system is activated and properly primed. It is protected by the circuit breaker in the panel and an automatically resetting breaker on the pump motor.

Baitwell (Optional)

Located in the cockpit switch panel next to the flybridge ladder. Supplies 12-volt electrical current directly to the baitwell pump pressure switch located on the pump. The pressure switch automatically controls the water pump when the system is activated and properly primed. It is protected by the circuit breaker in the panel and an automatically resetting breaker on the pump motor.

Lights

Located in the cockpit switch panel next to the flybridge ladder. Activates the lights that illuminate the cockpit area.

Cable Master Power Switch (Optional)

Located in the cockpit below the port gunnel near the flybridge ladder. It controls the unit that extends and retracts the shore power cord. When the switch is in the “OUT” position, the shore power cord will continue to extend until the switch is turned off. When the switch is in the “IN” position, the cord will retract until the switch is turned off or the cord is completely retracted. An “In-Limit” switch built into the unit automatically shuts the cable master off when the cable is fully retracted. The cable master is protected by a circuit breaker in the cabin DC panel.

Holding Tank Macerator

The holding tank overboard discharge macerator switch panel is located in the head compartment next to the holding tank monitor. It is a momentary switch that activates the overboard macerator discharge system for the holding tank. Refer to the Marine Head System in the Interior Equipment chapter for additional information on the operation of the overboard macerator discharge system.

Cabin DC Accessory Breaker Panel

Power is distributed to most of the 12-volt accessories through individual circuit breakers located in two cabin DC breaker panels. The breaker panels are located behind cabinet doors on the port side of the cabin near the aft bulkhead. A main breaker located near the house battery switch protects the system from an overload. Some 12-volt accessories are operated directly by the circuit breaker in the panel while others are operated by switches fed by the panel breakers.

A DC voltage meter is located in the lower panel that monitors the voltage level in the batteries. It will monitor the voltage of the batteries plus any electrical charges supplied to them



Cabin DC Breaker Panel

when the engines or the battery charger are operating. A selector switch in the panel allows you to test each battery bank individually.

A DC load meter is located in lower panel that indicates the total amperage or current being drawn through the DC panel. It is the total current level of all of the 12-volt equipment in operation at the time.

The following is a description of the accessories controlled by the breakers in the upper DC breaker panel:

12-Volt Main

Supplies the 12-volt current to the upper cabin DC breaker panel and protects the panel from an overload.

Radar 1

Supplies electrical current directly to the optional radar unit.

GPS

Supplies electrical current directly to the GPS.

Spreader Lights

Supplies electrical current to the spreader light switch in the helm switch panel.

Auto Pilot

Supplies electrical current directly to the auto pilot.

VHF 1

Supplies electrical current directly to the VHF radio in the cabin.

VHF 2

Supplies electrical current directly to the VHF radio for the helm station.

Salt Water Pump

Supplies electrical current to the washdown switch in the helm cockpit panel.

Reserved

Reserved for additional DC equipment.

Overhead Lights

Activates the cockpit lights that are built into the hardtop.

Cellular Phone

Activates the accessory plug for a 12-volt cellular phone charger.

Reserved

Reserved for additional DC equipment.

Spare (4)

Reserved for additional DC equipment

The following is a description of the accessories controlled by the breakers in the lower DC breaker panel:**DC Amp Meter**

Indicates the total amperage or current being drawn through the DC panel. It is the total current level of all of the 12-volt equipment in operation at the time.

DC Volt Meter

Indicates the voltage available to the panel.

Battery Test Switch

A four position switch that is used to monitor the available DC voltage and amperage in each battery bank individually.

Main

Supplies the 12-volt current to the lower DC breaker panel and protects the panel from an overload.

Navigation Lights

Supplies 12-volt electrical current to the nav/anchor and instrument lights switches in the helm switch panel.

Cabin Lights Fwd

Supplies 12-volt electrical current to the cabin light switches in the main stateroom and part of main salon.

Cabin Lights Fwd

Supplies 12-volt electrical current to the cabin light switches in the main stateroom and the head compartment.

Cabin Lights Aft

Supplies 12-volt electrical current to the cabin light switches in the main salon.

Cabin Lights Aft

Supplies 12-volt electrical current to the cabin light switches in the main salon and the galley.

Cockpit Lights__

Supplies 12-volt electrical current to the cockpit lights switch in the helm switch panel.

Engine Room Lights

Supplies 12-volt electrical current to the engine room lights.

Bilge Pump Aft

Supplies 12-volt electrical current to the aft bilge pump switch in helm switch panel enabling the operator to manually activate the aft bilge pump. The automatic switch is always supplied current when the batteries are connected.

Bilge Pump Fwd

Supplies 12-volt electrical current to the forward bilge pump switch in helm switch panel enabling the operator to manually activate the forward bilge pump. The automatic switch is always supplied current when the batteries are connected.

Bilge Pump Mid

Supplies 12-volt electrical current to the mid bilge pump switch in helm switch panel enabling the operator to manually activate the mid bilge pump. The automatic switch is always supplied current when the batteries are connected.

Washdown Pump

Supplies 12-volt electrical current to the raw water washdown pump switch located in the helm cockpit panel.

Note: Please refer to the Raw Water System chapter for more information on the livewell and washdown systems.

Fishbox Macerator

Supplies 12-volt electrical current to the fishbox drain pump switch located in the helm switch panel.

Fresh Water Pump

Supplies 12-volt electrical current directly to the fresh water pump pressure switch located on the pump. The pressure switch automatically controls the water pump when the system is activated and properly primed. It is protected by the circuit breaker in the panel and an automatically resetting breaker on the pump motor or an in-line fuse near the pump motor.

Sump Pump

Supplies 12-volt electrical current directly to the sump pump.

Holding Tank Pump

Supplies electrical current to the macerator pump. This breaker should be in the “OFF” position except when pumping out the holding tank.

Horn

Supplies 12-volt electrical current to the horn switch in the helm switch panel.

Blower

Supplies 12-volt electrical current to the bilge blower switch in the helm switch panel. Refer to the blower switch in this chapter and the Ventilation Systems chapter for more information on the blower.

Bilge Lights

Supplies 12-volt electrical current to the bilge light switch for the aft bilge compartment.

Trim Tabs

Supplies 12-volt electrical current to the trim tab switch on the helm switch panel.

Head

Supplies electrical current directly to the vacuum pump on the electric head system. A vacuum switch on the pump automatically controls the pump and maintains proper vacuum in the system.

Bilge Lights

Supplies 12-volt electrical current to the bilge light switch for the forward bilge compartment.

Baitwell

Supplies 12-volt electrical current directly to the livewell pump pressure switch located on the pump. The pressure switch automatically controls the water pump when the system is activated and properly primed. It is protected by the circuit breaker in the panel and an automatically resetting breaker on the pump motor.

Livewell

Supplies 12-volt electrical current directly to the livewell pump pressure switch located on the pump. The pressure switch automatically controls the water pump when the system is activated and properly primed. It is protected by the circuit breaker in the panel and an automatically resetting breaker on the pump motor.

Stereo

Supplies 12-volt electrical current to the stereo.

Reserved

Reserved for additional DC equipment.

Cable Master

Supplies 12-volt electrical current to the optional Cable Master control switch located in the cockpit. The Cable Master unit is used to extend and retract the shore power cable.

Oil Change Pump

Supplies 12-volt electrical current to the switch on the oil change pump.

Reserved

Reserved for additional DC equipment.

Electronics

Supplies 12-volt electrical current to the electronics.

Spare

Reserved for additional 12-volt equipment.

Spare

Reserved for additional 12-volt equipment.

Additional Breaker Panels:

The following is a description of the accessories controlled by the “Push to Reset” DC breakers in the battery switch panel:

Pt Engine Control Breaker

Provides protection and power for the 12-volt circuit to the port engine electronic control processor. This “push to reset” breaker is always supplied current when the port engine battery switch is activated.

Stbd Engine Control Breaker

Provides protection and power for the 12-volt circuit to the starboard engine electronic control processor. This “push to reset” breaker is always supplied current when the starboard engine battery switch is activated.

Batt Condition Starboard

Provides protection and power for the 12-volt circuit to the battery condition test switch for the starboard engine battery bank.

Batt Condition Port

Provides protection and power for the 12-volt circuit to the battery condition test switch for the port engine battery bank.

Batt Condition House

Provides protection and power for the 12-volt circuit to the battery condition test switch for the port engine battery bank.

Stereo

Provides protection and power for the stereo memory. This “push to reset” breaker is always supplied current when the batteries are connected.

Bilge Auto Fwd

Provides protection and power for the automatic float switch on the aft bilge pump. This “push to reset” breaker is always supplied current when the batteries are connected. Another breaker in the helm provides circuit protection for the manual switch.

Bilge Pump Mid

Provides protection and power for the automatic float switch on the mid bilge pump. This “push to reset” breaker is always supplied current when the batteries are connected. Another breaker in the helm provides circuit protection for the manual switch.

Bilge Pump Aft

Provides protection and power for the automatic float switch on the aft bilge pump. This “push to reset” breaker is always supplied current when the batteries are connected. Another breaker in the helm provides circuit protection for the manual switch.

High Water Alarm

Provides protection and power for the automatic switch on the high water alarm. This “push to reset” breaker is always supplied current when the batteries are connected.

Shower Sump Pump

Provides protection and power for the automatic float switch for the shower sump pump. This “push to reset” breaker is always supplied current when the house battery switch is activated.

Reel Outlets

Activates optional outlets for down riggers or electric reels located in the cockpit below the gunnels.

Reel Outlets

Activates optional outlets for down riggers or electric reels located in the cockpit below the gunnels.

Port Engine

Supplies 12-volt electrical current to the port Glendenning controls.

Starboard Engine

Supplies 12-volt electrical current to the starboard Glendenning controls.

Parallel Switch

Supplies 12-volt electrical current to the parallel switch in the helm switch panel.

Spare

Reserved addition 12-volt Accessories.

Engine Circuit Breakers:

There are circuit breakers located on each engine that provide protection for the ignition systems, electric fuel pump, charging system and other accessories unique to the engines installed in your boat. Please refer to the engine owner’s manual for information on the circuit breakers installed on your engines.

4.3 240 and 120-Volt System

The 240-volt AC system is fed by the shore power outlet or by the optional generator. It is wired totally separate from the 12-volt DC system and is equipped with an on-board galvanic isolation system. 240 and 120-volt current is available and distributed to the AC accessories through individual circuit breakers located in the 240-volt panel. The main breaker in the panel protects the system from an overload and the reverse polarity light indicates any problems due to an improper shore power supply. All AC outlets in the cabin are protected by ground fault interrupts to protect against electrical shock. A cord set is provided to supply power from the shore power outlet to the boat's AC system.



TO REDUCE THE RISK OF ELECTRICAL SHOCK IN WET WEATHER, AVOID MAKING CONTACT WITH THE SHORE CABLE OR MAKING A CONNECTION TO A LIVE SHORE OUTLET. NEVER SPRAY WATER ON ELECTRICAL CABLES WHILE WASHING DOWN DECKS.



TO REDUCE THE POSSIBILITY OF AN ELECTRICAL SHOCK, IT IS IMPORTANT THAT THE AC GROUND SYSTEM IS FUNCTIONING PROPERLY AND THAT A PROPER CONNECTION EXISTS BETWEEN THE SHORE POWER CORD, THE SHORE POWER INLET, THE BOAT BONDING SYSTEM AND THE OUTLET GROUND CIRCUITS. IF THERE IS ANY DOUBT ABOUT THE INTEGRITY OF THE GROUND CIRCUIT, A QUALIFIED MARINE ELECTRICIAN SHOULD BE CONTACTED IMMEDIATELY AND THE AC POWER SHOULD BE DISCONNECTED UNTIL THE NECESSARY REPAIRS ARE COMPLETED.



DO NOT OPERATE THE AC ELECTRICAL SYSTEM FROM SHORE POWER WITH REVERSE POLARITY. REVERSE POLARITY WILL DAMAGE THE SYSTEM AND EXPOSE PASSENGERS TO ELECTROCUTION HAZARDS. THIS CONDITION COULD ALSO CAUSE A FIRE IN THE ELECTRICAL SYSTEM.



DO NOT ATTEMPT TO CORRECT THE WIRING YOURSELF. ELECTRIC SHOCK CAN CAUSE SEVERE INJURY OR EVEN DEATH. ALWAYS HAVE A QUALIFIED ELECTRICIAN CHECK WIRING

KEEP CHILDREN AWAY FROM ANY ELECTRICAL CABLES OR EQUIPMENT AND ALWAYS USE GROUNDED APPLIANCES ON BOARD YOUR BOAT.



UNDETECTED FAULTS IN THE AC ELECTRICAL SYSTEM COULD CAUSE THE WATER AROUND THE BOAT TO BECOME ENERGIZED. THIS COULD CAUSE A SEVERE SHOCK OR EVEN DEATH TO SOMEONE IN THE WATER NEAR THE BOAT. NEVER SWIM OR ALLOW SWIMMING AROUND THE BOAT WHEN THE AC SYSTEM IS ACTIVATED BY THE GENERATOR OR THE SHORE POWER CONNECTION.

Recommended procedure for making a shore connection

Turn the AC main breaker to the "OFF" position. If the dock side outlet includes a disconnect switch, turn it to the "OFF" position also.

To avoid strain on the cable make sure it has more slack than the mooring lines. Dress the cable so that it cannot be damaged by chafing between the boat and the dock. Make sure the cable does not come in contact with the water. Then connect the cable in the boat plug inlet and the dockside outlet, making sure the connection plug includes a three-prong plug with a ground wire. Tighten the lock rings on both the shore and the boat connector plugs.

Turn the dock side disconnect switch or circuit breaker to the "ON" position and check for proper polarity. If reverse polarity has been achieved, the red fault indicator in the 240-volt panel will light. If this should happen, make sure the main breaker on the panel is in the "OFF" position and turn the dock power switch or breaker off. A special relay attached to the main breaker should automatically turn the main breaker off whenever reverse polarity is achieved. Notify a qualified

Note: An additional breaker for shore power is located on the forward engine room bulkhead.

Disconnecting procedure for shore power connection

Turn the main breaker on the AC panel and the disconnect switch on the dock side outlet to the "OFF" position.

Disconnect the cable from the dock side outlet and replace the outlet caps. Disconnect the cable from the boat, store or retract the cable close the inlet cap. Store cable.

AC Accessory Breaker Panel

The AC panel is located in the cabin. The following is a description of the AC panel equipment and the breakers that protect the accessories:

AC Amp Meter

Indicates the total amperage or current being drawn through the AC panel. It is the total current level of all of the AC equipment in operation at the time. The test switch on the panel below the meter is used to select to monitor hot line 1 or hot line 2.

AC Volt Meter

Indicates the voltage supplied to the panel. The test switch on the panel below the meter is used to select to monitor hot line 1 or hot line 2.

AC Main Breaker

Protects the general distribution network. This breaker is very sensitive. The resulting power surge that occurs when connecting the dock side cord may cause the main breaker to trip. To avoid this surge, always turn the main breaker to the “OFF” position before plugging or unplugging the shore power cord. The AC main breaker also is equipped with a relay that will cause the main breaker to trip when reversed polarity current is detected.

There is a main breaker for the shore circuit and the generator. Sliding safety covers on the main breakers prevent activating circuits for the generator and shore line simultaneously.

Fault Light

The red light indicates reverse polarity current supplied to the panel. This situation will cause the red light to remain lit and the special relay attached to the main breaker will automatically turn the main breaker off. If reverse polarity is achieved, immediately turn off all cabin AC breakers and dockside outlet breakers. Disconnect the power cable from the dockside outlet and notify a qualified electrician to check the dockside wiring.

Power Available Light

The green light indicates that correct AC current is being supplied to the panel.

240-Volts AC

Air Conditioner

Supplies 240-volt AC electrical current to the air conditioning control panel and the air conditioner/freezer raw water pump when this option is installed.

Heater 1

Supplies 240-volt AC electrical current to the flybridge air conditioning control panel and heater.

Heater 2

Supplies 240-volt AC electrical current to the salon air conditioning control panel and heater

Heater 3

Supplies 240-volt AC electrical current to the forward cabin air conditioning control panel and the air conditioner and heater



AC Circuit Breaker and Generator Control Panel

Note: These breakers will trip if sea water is not being supplied to the air conditioning unit. If this breaker trips, reset and check for water flow out of the air conditioning thru-hull. Refer to the air conditioner owner's manual for additional information.

120-Volts Buss A

Reserved

Reserved for additional AC equipment.

Outlets Port

Supplies 120-volt AC electrical current to the port ground fault interrupter (GFI) electrical outlets.

Outlets FWD

Supplies 120-volt AC electrical current to the forward cabin ground fault interrupter (GFI) electrical outlets.

Vacuum Cleaner

Supplies 120-volt AC current directly to the central vacuum system.

Outlets Head

Supplies 120-volt AC electrical current to the head compartment ground fault interrupter (GFI) electrical outlets.

Outlets Engine Room

Supplies 120-volt AC electrical current to the engine compartment ground fault interrupter (GFI) electrical outlets.

Outlets Salon

Supplies 120-volt AC electrical current to the salon ground fault interrupter (GFI) electrical outlets.

Engine Room Lights

Supplies 120-volt AC electrical current to 120-volt engine room lights.

Outlets Flybridge

Supplies 120-volt AC electrical current to the flybridge ground fault interrupter (GFI) electrical outlets.



GFI OUTLETS DO NOT PROVIDE 100% PROTECTION FROM ELECTRIC SHOCK. EVEN THOUGH GROUND FAULT INTERRUPTERS PROVIDE PROTECTION BY REDUCING EXPOSURE TIME FROM LINE TO GROUND SHOCK HAZARDS, IT IS STILL POSSIBLE TO RECEIVE AN ELECTRIC SHOCK FROM DEFECTIVE APPLIANCES OR POWER TOOLS AND MISUSED ELECTRICAL EQUIPMENT.

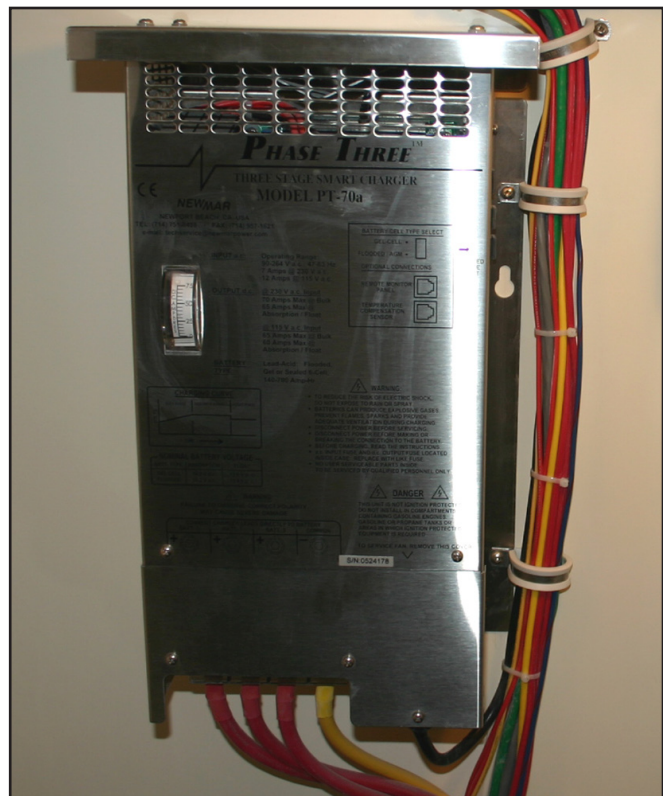
120-Volt Buss B

Battery Charger

Supplies electrical current directly to the automatic battery charger. The battery charger charges and maintains the 12-volt batteries simultaneously when activated. It is fully automatic and equipped with an amp meter to monitor charging. See the battery charger manual for more information.

Charging also can be monitored by using the volt meter in the cabin DC breaker panel. To monitor the batteries, activate the charger and turn the engine and house battery switches on. Select each battery bank with the test switch located on the panel below the DC volt meter and read the voltage on the volt meter for each battery bank. If the batteries are in good condition and charging properly, the volt meter will indicate between 12 and 14.5 volts. If the reading is below 12 volts, then the battery is not accepting a charge or the charger is not working properly.

The wires that supply DC charging current to the batteries are protected by an internal fuse in the battery charger and three external circuit breakers, one for each battery bank output wire,



Battery Charger

located near the battery switches. The external breakers protect the DC charging circuit from the batteries to the charger. The internal fuses in the charger protect the DC charging circuit from the charger to the batteries.

Microwave

Supplies 120-volt AC current directly to the microwave oven. See the microwave manual for more information.

Water Heater

Supplies 120-volt AC electrical current directly to the water heater circuit. The water temperature is automatically controlled by a thermostat in the water heater control panel. Before operation, you must have water in the water heater (see the water heater manual for more information).

Entertainment Center

Supplies 120-volt electrical current directly to the outlets in the entertainment center.

Ice Maker

Supplies 120-volt AC electrical current to the ice maker.

Stove

Supplies 240-volt AC electrical current directly to the galley stove.

Outlets Galley

Supplies 120-volt AC electrical current to the cabin ground fault interrupter (GFI) electrical outlets.

Air Conditioner Helm

Supplies 120-volt AC electrical current to the flybridge air conditioning control panel and heater.

Additional AC Breaker Panels and Switches

AC Power Selector Switch

This switch is installed in the cabin breaker panel. Move the selector switch to the “SHORE” position when connected to dock side power. Move the selector switch to the “GENERATOR” position when the generator is being operated.

Generator Operation Panel

These switches control the starting, running, and stopping of the optional generator. The procedures may vary depending on the model and type of generator installed in your boat. An owner operator’s manual for the generator has been supplied with this manual. Please refer to it for details on the generator operation.

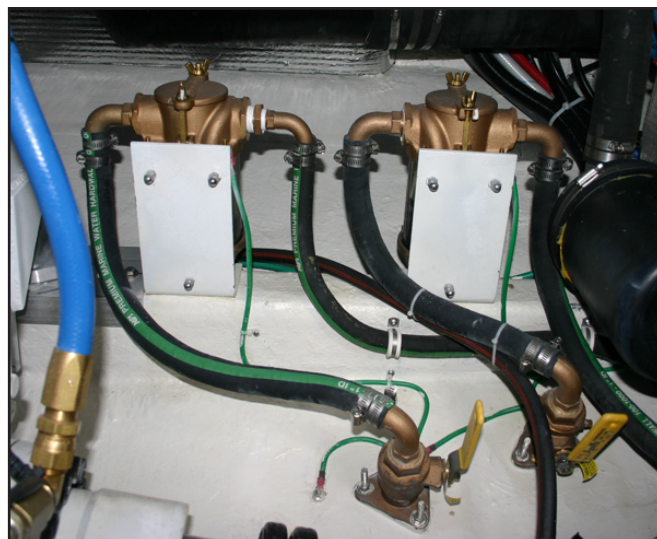
The generator panel also includes gauges and warning lights that monitor critical engine systems.

Note: Diesel generators consume DC electrical current and charge the battery just enough to compensate for the DC electrical current the engine requires to operate. Therefore, it is important to activate the battery charger to maintain the house battery whenever the generator is running.

Note: The generator may not be able to operate all AC accessories at the same time. POWER MANAGEMENT PRACTICES may need to be observed depending on the AC power load.



Typical Generator Control Panel



Generator and Air Conditioner Sea Strainers and Thru-Hull Valves

4.4 Generator

The generator is activated by the generator battery and is located in the rear of the engine compartment. There is a removable access panel on the side of the genset that enables you to check and service generator components. The generator oil should be checked whenever you check the oil in the main engines.

The generator engine uses a closed cooling system with a seawater cooled heat exchanger. There is an expansion tank for the engine coolant mounted aft of the port engine, near the generator. Make sure the fluid level in the expansion tank is kept between the maximum and minimum lines of the tank.

The seawater cooling system operates exactly like the cooling system on the main engines. It includes a strainer that prevents debris in the seawater from entering the cooling pump. The

strainer is located on the stringer aft of the starboard engine. It is important to check and clean the strainer regularly to ensure the seawater system can circulate enough water to provide cooling for the closed cooling and exhaust systems on the generator. The strainer is visually inspected by looking through the glass case, for accumulation of marine growth, weeds, and other foreign objects. If clogged or dirty, the strainer should be cleaned.



A CLOGGED SEA STRAINER CAN RESTRICT THE SUPPLY OF COOLING WATER TO THE ENGINE AND EXHAUST COMPONENTS, WHICH COULD RESULT IN SEVERE ENGINE AND EXHAUST SYSTEM DAMAGE.

Cleaning the sea strainer

- Turn off the generator.
- Close the generator water intake valve.
- Open the top of the strainer and remove the screen.
- Thoroughly flush the screen and the inside of the strainer to remove foreign matter.
- Lubricate the seal.
- Reassemble the strainer making sure that all fasteners are tight.
- Open the intake valve.
- Start the generator and inspect the strainer for leaks.

The generator fuel system is equipped with a water separating fuel filter and operates much like the fuel system for the main engines. Please refer to the Fuel System chapter for more information on generator fuel system.

You also should read the generator owner's manual for detailed information on the safe operation and maintenance of the generator.



GENERATOR ENGINES PRODUCE CARBON MONOXIDE WHICH IS A LETHAL, TOXIC GAS THAT IS COLORLESS AND ODORLESS. IT IS A DANGEROUS GAS THAT WILL CAUSE DEATH IN CERTAIN LEVELS. ONLY OPERATE THE GENERATOR IN WELL VENTILATED AREAS AND NEVER OPERATE THE GENERATOR WHILE YOU ARE SLEEPING.

4.5 Bonding System

Your boat is equipped with a bonding system that interconnects all underwater hardware and thru-hull fittings to ensure that they are of the same electrical potential. Zinc anodes are attached to the bonding system at the transom, trim tabs and propeller shafts. The Zinc anodes deteriorate before the other metals, thereby protecting the underwater water metals from galvanic corrosion or stray electrical current. Since the zincs are sacrificial, it is important to monitor them and replace the zincs when they have deteriorated to 50 - 75% of their original size. The bonding system is connected to the DC ground and

the earth ground wire for the AC electrical system. It provides a path to the safety earth ground in the event of a fault in the shore earth ground connection and when the boat is away from the dock.

4.6 Electrical System Maintenance

12-Volt DC Electrical System Maintenance

At least once a year, spray all exposed electrical components behind the helm and in the plugs, with a protector. Exterior light fixture bulbs should be removed and the metal contact areas coated with a non-water soluble lubricant like petroleum jelly or silicone grease. The sockets should be sprayed with a protector. Care must be taken not to get any oil or petroleum jelly on the glass portion of the bulbs as this will cause the bulb to overheat and burn out.



WHEN REPLACING LIGHT BULBS IN MARINE LIGHT FIXTURES, ALWAYS USE A BULB WITH THE SAME RATING AS THE ORIGINAL. USING A DIFFERENT BULB COULD CAUSE THE FIXTURE TO OVERHEAT AND MELT OR SHORT CIRCUIT.

Check all below deck wiring to be sure it is properly supported, that the insulation is sound, and that there are no loose or corroded terminals. Corroded terminals should be thoroughly cleaned with sandpaper, or replaced, tightened securely and sprayed with a metal and electrical protector. Inspect all engine wiring.

Check the electrolyte level in the batteries regularly and add distilled water as necessary. If the batteries are frequently charged by the automatic battery charger, the electrolyte level will have to be checked more often. The correct fluid level in the cells is usually approximately 1/4 to 1/2 inch above the plates. If fluid is needed, fill to the proper level with distilled water. **Do not over fill!** Please note that some batteries are sealed and cannot be filled.

Keep the battery tops clean and dry. Dirt and water can conduct electricity from one post to the other causing the battery to discharge.

The battery posts should be kept free of corrosion. Remove the cables and clean the posts and cable clamps with a battery post cleaner or sandpaper as required. Coating the battery posts and cable clamps with petroleum jelly or silicone grease will protect them and reduce corrosion. Battery cables, both hot and ground, must be replaced when they show signs of corrosion or fraying. Deteriorated cables cause a considerable voltage loss when high currents are drawn, as for starting the engine.



NEVER USE AN OPEN FLAME IN THE BATTERY STORAGE AREA. AVOID STRIKING SPARKS NEAR THE BATTERY. A BATTERY CAN EXPLODE IF A FLAME OR SPARK IGNITES THE HYDROGEN GAS THE BATTERY EMITS WHILE BEING CHARGED.

AC Electrical System Maintenance

Periodically inspect all wiring for nicks, chafing, brittleness, improper support, etc. Examine the shore power cord closely for cracks in the insulation and corrosion in electrical connectors. Spraying receptacles and electrical connections with an electrical contact cleaner or a metal and electrical protector will reduce corrosion and improve electrical continuity.

Inspect all wiring for proper support, sound insulation, and tight terminals, paying particular attention to portable appliance cords and plugs.

The entire AC circuitry, especially the shore power cord, should be seasonally tested for proper continuity by an experienced electrician. This will detect any shorts, open wires, or ground faults. Ground fault interrupts should be tested periodically to ensure proper operation by pressing the test/reset buttons in the center of face plate. The polarity indicator system also should be inspected for proper operation.

The engine maintenance required on the generator is similar in many ways to the main engines. The most important factors to the generator's longevity are proper ventilation, maintenance of the fuel system, ignition system, cooling system, lubrication system and the AC alternator.

Maintenance schedules and procedures are outlined in your generator owner's manual. They should be followed exactly.



CORROSION ALLOWED TO BUILD ON THE ELECTRICAL CONNECTORS CAN CAUSE A POOR CONNECTION RESULTING IN SHORTS, GROUND FAULTS OR POOR GROUND CONNECTIONS. ELECTRICAL CONNECTORS SHOULD CHECKED AT LEAST ANNUALLY AND CLEANED AS REQUIRED. DO NOT ALLOW CORROSION TO BUILD ON CONNECTIONS.



THE AC AND DC ELECTRICAL SYSTEMS ALWAYS SHOULD BE DISCONNECTED FROM THE POWER SOURCE BEFORE INSPECTING OR SERVICING THE SYSTEM. NEVER SERVICE ANY COMPONENT OF AN ELECTRICAL SYSTEM WHILE IT IS ENERGIZED.

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Chapter 5:

FRESH WATER SYSTEM

5.1 General

The fresh water system consists of a potable water tank, distribution lines and a distribution pump. The pump is equipped with an automatic pressure switch and is located near the water tank below the cabin sole. The tank is filled through a labeled deck plate located on the gunnel.



DO NOT FILL SYSTEM WITH ANYTHING OTHER THAN WATER. SHOULD THE SYSTEM BECOME CONTAMINATED WITH FUEL OR OTHER TOXIC FLUIDS, COMPONENT REPLACEMENT MAY BE NECESSARY.



DO NOT CONFUSE FUEL FILL DECK PLATES WITH THE WATER OR WASTE FILL DECK PLATES. THESE PLATES ALSO ARE LABELED ACCORDINGLY. IF GASOLINE OR DIESEL FUEL IS ACCIDENTALLY PUMPED INTO THE WATER OR WASTE TANK, DO NOT ATTEMPT TO PUMP IT OUT YOURSELF. WATER AND WASTE PUMPS ARE NOT DESIGNED TO PUMP FUEL AND A FIRE OR EXPLOSION COULD RESULT. CONTACT YOUR DEALER OR THE ALBEMARLE CUSTOMER SERVICE DEPARTMENT FOR ASSISTANCE IN HAVING THE FUEL PROFESSIONALLY REMOVED AND COMPONENTS OF THE FRESH WATER SYSTEM REPLACED AS NECESSARY.



Fresh Water Pump, In-line Strainer and In-line Fuse

The Washdown Hose Connector

A quick-release fresh water wash-down hose connector is located on the starboard side of the cockpit below the gunnel. It is identified by a blue plastic cover that rotates to the open and closed positions. The connector has an automatic valve that is always closed until the washdown hose is connected.



The hose requires a special fitting that snaps into the connector and activates the automatic valve. The cover on the connector should always be in the closed position to keep the connector clean when the washdown hose is not attached. Contact your Albemarle dealer for information on replacement fittings and hoses.

5.2 Fresh Water System Operation

Fill the water supply tank slowly through the labeled deck plate. After filling the water tank, partially open all faucets. The fresh water pump breaker on the cabin DC panel should be on. Allow the pump to run until all of the air is purged from the system and a steady stream of water is flowing from each outlet. Next, turn off the faucets one by one. As the pressure builds, the pump will automatically shut off.

When properly primed and activated the water system will operate much like the water system in a home. An automatic pressure sensor keeps the system pressurized. An accumulator tank reduces pump cycling. If the system has been recently filled or has not been used for an extended period, air bubbles may accumulate at the pump and the system may have to be reprimed.

Whenever the boat is left unattended, the fresh water pump breaker should be placed in the “OFF” position.



DO NOT ALLOW THE FRESH WATER PUMP TO RUN DRY. THE FRESH WATER PUMP WORKS ON DEMAND AND WILL NOT SHUT OFF AUTOMATICALLY WHEN THE TANK IS EMPTY. THIS CAN RESULT IN DAMAGE TO THE PUMP. ALWAYS TURN THE WATER PRESSURE BREAKER OFF WHEN THE FRESH WATER SYSTEM IS NOT IN USE.

5.3 Water Heater

The water heater is located in the aft bilge. It has a 120-volt element that is thermostatically controlled at the heater and activated by a circuit breaker located in the AC breaker panel. The water heater is also equipped with a heat exchanger that can be plumbed to the fresh water cooling system on one of the engines. The heat exchanger will heat the water in the hot water tank whenever that engine is operating.

Plumbing the heat exchanger to an engine is optional on Albemarle boats. For highest efficiency, the engine heat exchanger is of the single wall type. If it fails, engine coolant could enter the boat's water supply. If the coolant in the engine is toxic and someone drinks the water, serious injury or death could result. The freshwater supply could become contaminated with engine coolant if the heat exchanger in the water heater fails. **MOST ENGINE COOLANT IS TOXIC AND CAN CAUSE** Serious injury or death if it contaminates the freshwater supply and someone drinks the water. Never drink the water from the freshwater system faucets when the engine heat exchanger is activated.

A high pressure relief valve protects the system from excessive pressure. Always make sure all air is purged from the water heater and lines before activating the water heater breaker. Refer to the water heater owner's manual for additional information.



Water Heater



5.4 City Water Connection (Optional)

The shore water connection allows the direct connection of the water system to a city side water supply. This provides the system with a constant supply of fresh water and minimizes the pressure pump operation. A female inlet fitting is mounted in the cockpit. A pressure reducer is installed in the system along with two check valves. One check valve keeps water from running out of the city water inlet fitting when the pressure pump operates. The second provides protection for the pressure pump when the city water is connected.

To use city water, connect a hose from the shore water faucet to the city water fitting on the boat. Next, turn on the shore water. The pressure pump will not run and the water in the boat's water tank will not be used.

Note: The water tank will not be filled by connecting to shore water.

5.5 Shower Operation

The shower is located in the head compartment. Make sure the Fresh Water breaker in the DC breaker panel is on, then turn the water on. Adjust the hot and cold water faucet until the desired temperature is obtained. Some minor variations in the water temperature may occur as the pressure pump cycles.

Shower water is drained from the head compartment by a sump pump system connected to the shower drain. An automatic float switch in the shower sump controls the pump. The pump can be manually activated and protected by the shower sump pump circuit breaker in the panel. After showering, let the cold water flow for a period of time to flush the drainage system of soap residue.

The shower sump system is located in the forward bilge. It is essential that the shower drain strainer is cleaned regularly and the sump is inspected periodically for accumulated debris that needs to be removed.

5.6 Reverse Osmosis Filter (Optional)

A reverse osmosis (RO) filtration system is optional and could be installed on your boat in the forward bilge compartment. It delivers purified water to a separate faucet on the galley sink and to the ice maker. The system uses a combination of filtration technologies to reduce unwanted contaminants from the onboard fresh water for drinking and cooking. There are three filters and a processed water holding tank. The sediment prefilter will remove the larger particles such as silt, rust and scale. The RO membrane significantly reduces the dissolved mineral content of the water. Finally an activated carbon filter reduces tastes and odors that may pass through the system. The filtered water is stored in a special holding tank that is automatically refilled whenever the fresh water system is activated.

The fresh water system must be activated and pressurized for the RO to filter water and fill the drinking water holding tank. The system is capable of making about two gallons of filtered water per hour so it is important to activate the freshwater system at least one hour before turning on the ice maker to ensure there is enough filtered water to make ice. It is also important to leave the fresh water pump activated whenever the boat is occupied so the system can continue to produce filtered water and keep up with the demand.

This system is designed to filter fresh, potable city or well water only. Do not attempt to make drinking water from sea water, lake water or other non potable water that is microbiologically unsafe or of unknown quality. The RO system is not designed to filter non potable water and is not capable of providing safe drinking water from non potable sources.

The filters must be replaced and the system sanitized at regular intervals as recommended by the RO manufacturer. Additionally, the filters may need to be changed and the system sanitized if the RO system has not been used for an extended period. Please refer to RO manufacturer owner's manual for detailed instructions on the operation and maintenance of this system.

5.7 Fresh Water System Maintenance

Information supplied with water system components, by the equipment manufacturers, is included with this manual. Refer to this information for additional operation and service data.

The following items should be done routinely to maintain your fresh water system:

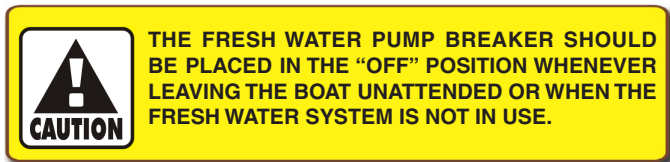


Reverse Osmosis Filters and Drinking Water Holding Tank

- Periodically remove and clean the water strainer located near the intake side of the freshwater pump. To clean the strainer, make sure the Fresh Water breaker on the DC panel is off. Loosen the fitting for the intake line and remove the line from the strainer. Rotate the wing lever on the strainer cap 1/4 turn to release it. Remove and clean the screen with freshwater. Lubricate the O-ring lightly with petroleum jelly when reinstalling the cap.
- Remove the filter screens from the faucet spouts and eliminate any accumulation of debris. A build up of debris can cause the pump to cycle excessively.
- Periodically remove the lid on the shower sump assembly located in the forward bilge. Clean debris from the sump and flush with clean water.
- Periodically spray the pumps and metal components with a metal protector.
- The batteries must be properly maintained and charged. Operating the pressure pump from a battery with a low charge could lead to pump failure.

- Add a commercially available potable water conditioner to the water tank to keep it fresh.
- Periodically replace the reverse osmosis drinking water filters and sanitize the system as instructed in the RO manufacturers owner's manual.

Note: The fresh water system must be properly winterized prior to winter lay-up. Refer to the section on winterizing for more information.



Sanitizing the Fresh Water Tank

The freshwater system should be sanitized if it has not been used for a long period or you are unsure of the quality of the water in the system.

The following steps can be used to sanitize the system:

- Activate the system, open all hot and cold faucets and pump out as much water as you can.

- Make a chlorine solution by mixing two ounces of household chlorine bleach in a gallon of water. This mixture will treat approximately fifteen gallons. If the water tank on your boat is larger or smaller than 15 gallons, then adjust the mixture accordingly. Always mix the chlorine with water in a separate container first and never add straight chlorine to the fresh water tank.

- Fill the water tank half full with freshwater and pour the mixture into the water tank. Top off the tank.

- Activate the system and allow the water to run for about one minute at each faucet. Let the treated water stand for 4-6 hours.

- Drain the system by pumping it dry and flush with several tank fills of freshwater.

- The system should now be sanitized and can be filled with freshwater. If the chlorine smell is still strong, it should be flushed several more times with freshwater.

Note: The quality of the water in marine freshwater systems can be questionable. We recommend that you avoid using the water from the freshwater system for drinking and cooking. You should only use bottled water for these purposes.

Chapter 6:

RAW WATER SYSTEM

6.1 General

In the raw or sea water systems, all water pumps are supplied by hoses connected to ball valves and thru-hull fittings located in the in the bilge. Always make sure the ball valves are open before attempting to operate any component of the raw water system. 12-volt pumps supply sea water to most of the various accessories.

The air conditioners and bait freezer use 240-volt AC sea water supply pumps. These are the only 240-volt AC pumps in the system and they are automatically activated when the air conditioning or heating system is in use.

Priming the System

Make sure the ball valves are open. Open the hose connector for the raw water washdown and activate the pressure pump by turning the Salt Water Pump breaker and the Raw Water Washdown switch to the “ON” position. Run the pump until all of the air is purged from the system and then turn the switch off. Turn the Livewell breaker to the “ON” position. Run the pump until all of the air is purged from the system and then turn the breaker to the “OFF” position.

The intake for the bait freezer and air conditioner raw water pump is equipped with a scoop and ball valve. If the pump runs but will not prime after cleaning the strainer or at the time of launching, make sure the valve is open. If the pump still won't prime, it may be air locked. Make sure the valve is open and run the boat at or above 15 M.P.H. The water pressure from the scoop will force the trapped air through the pump and allow it to prime. If this procedure doesn't work, contact your Albemarle dealer.

Closing the thru-hull ball valves before the boat is hauled from the water will help to eliminate air locks in raw water systems.

Note: It may be necessary to reprime the raw water system if the system is not used for an extended period and at the time of launching.

6.2 High Pressure Washdown

A saltwater high pressure pump, controlled by a pressure sensor, supplies the raw water hose connector located in the cockpit. The pump is activated by washdown switch located in the switch panel near the flybridge ladder. This switch should be turned to the “ON” position just before using the washdown



Livewell and Washdown Pumps and Thru-Hull Fittings



Washdown Connector

and be turned to the “OFF” position when the washdown is not in use.

When activated, the pressure switch will automatically control the pump. As the pressure builds in the washdown hose, the pump will shut off. When the washdown hose is in use and the pressure drops, the pump will turn on.

The raw water washdown system is equipped with a sea strainer on the intake side of the pump located in the stern bilge. This should be checked frequently and cleaned as necessary.

The Washdown Pump Connector

A quick-release raw water washdown hose connector is located on the port side of the cockpit below the gunnel. It is identi-

fied by a black plastic cover that rotates to the open and closed positions. The connector has an automatic valve that is always closed until the washdown hose is connected.

The hose requires a special fitting that snaps into the connector and activates the automatic valve. The cover on the connector should always be in the closed position to keep the connector clean when the washdown hose is not attached. Contact your Albemarle dealer for information on replacement fittings and hoses.



ALWAYS TURN THE RAW WATER PUMP SWITCH TO THE "OFF" POSITION WHEN LEAVING THE BOAT UNATTENDED.

6.3 Livewell

Sea water is provided to the livewell pump by a thru-hull fitting. This pump is designed to carry a constant flow of water to the livewell. There is a sea strainer on the intake side of the pump located in the aft bilge compartment. This should be checked frequently and cleaned as necessary. The pump is activated by the Livewell breaker in the DC panel and a switch in the cockpit switch panel.

An overflow tube in the drain fitting automatically controls the water level in the livewell. Always turn the pump off at the breaker panel when the livewell is not in use.

To fill the livewell, insert the overflow tube into the drain fitting at the bottom of the livewell. Make sure the valve at the intake thru-hull fitting is open and activate the Livewell breaker. When the water level reaches the overflow, it will begin to circulate.

To drain the livewell, turn off the livewell pump and pull out the overflow tube in the drain fitting at the bottom of the livewell. When the livewell has completely drained, use the washdown hose to flush the livewell and drain of debris.

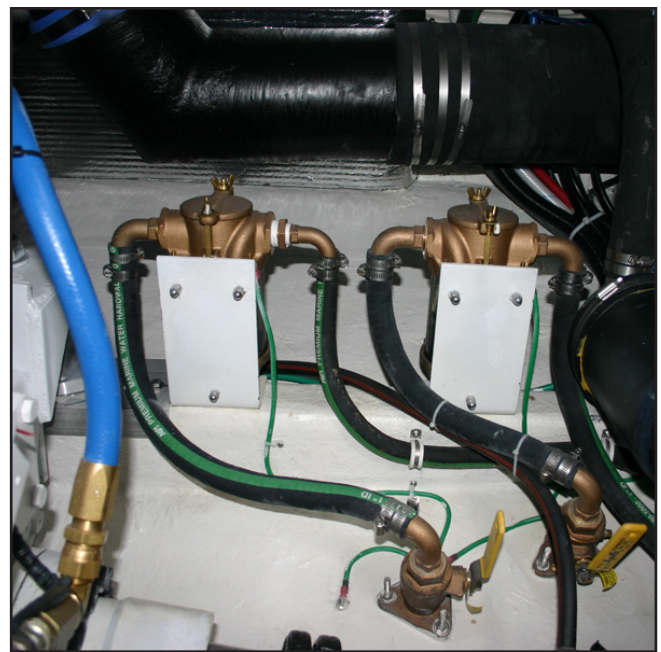
Note: Do not use the livewell as a dry storage area when it is not in use. Sea water could accidentally be delivered to the livewell from the thru-hull fitting and damage equipment stored there.

6.4 Air Conditioning and Optional Freezer

The air conditioners and bait freezer are sea water cooled. 240-volt centrifugal raw water pumps supply sea water that cools the condensing units as it circulates through the system and is discharged overboard. The pump for the flybridge air



Livewell



Air Conditioning Pump and Strainer

conditioner and freezer is located below the water line in the engine compartment and activated whenever 240-volt current is available and the air conditioning or freezer system is operating. The pump for the salon and lower berth air conditioners is located in the forward bilge compartment.

Sea water is supplied to each pump from a thru-hull fitting located in the hull near the pump. A sea strainer between the pump and thru-hull fitting protects the system from contaminants that could damage the pump or the system. Make sure the pumps receive adequate sea water by periodically cleaning the sea strainer baskets. The procedure for cleaning strainer is outlined in the maintenance section of this chapter. You also should refer to the manufacturer owner's manuals for more information on the operation and maintenance of the air conditioners and freezer.

6.5 Raw Water System Maintenance

The following items should be done routinely to help maintain your raw water system:

- Check hoses, particularly the sea water supply lines, for signs of deterioration.
- Periodically remove and clean the sea water strainers for the air conditioners and optional freezer. To clean the strainers, Turn off the air conditioners and freezer. Close the water intake valve then open the top of each strainer and remove the screen. Thoroughly flush the screen and the inside of the strainer to remove foreign matter. Lubricate the seal and reassemble the strainer making sure that all fasteners are tight. Then open the intake valve and start the air conditioner and freezer and inspect the strainer for leaks.
- Periodically remove and clean the water strainer located near the intake side of the washdown and livewell pumps. To clean the strainer, make sure the Washdown and Livewell Breakers on the DC panel are off. Close the thru-valves and loosen the fitting for the intake line and remove the line from the strainer. Rotate the wing lever on the strainer cap 1/4 turn to release it. Remove and clean the screen with freshwater. Lubricate the O-ring lightly with petroleum jelly when reinstalling the cap. Open the thru-valve and check for leaks.

- Spray pumps and thru-hull valves with a protective oil periodically.
- The fishboxes and livewells should be drained and cleaned after each use.
- Operate all thru-hull valves at least once a month to keep them operating properly.



SHOULD A HOSE RUPTURE, TURN THE PUMP OFF IMMEDIATELY. ALWAYS CLOSE THE THRU-HULL VALVE WHEN PERFORMING MAINTENANCE ON A SEA WATER PUMP.



THE BATTERIES MUST BE PROPERLY CHARGED. OPERATING ANY PUMPS FROM A BATTERY WITH A LOW CHARGE MAY LEAD TO A PUMP FAILURE.

THE RAW WATER SYSTEM MUST BE PROPERLY WINTERIZED PRIOR TO WINTER LAY-UP. SEE SECTION ON WINTERIZING.

DO NOT RUN THE WASHDOWN OR LIVEWELL PUMPS DRY FOR EXTENDED PERIODS AS DAMAGE TO THE PUMP WILL RESULT.

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Chapter 7: DRAINAGE SYSTEMS

7.1 General

Most water is drained by gravity to overboard thru-hull fittings located in the hull sides above the waterline. The cabin and some cockpit component drain thru-hull fittings are equipped with ball valves that are always open under normal operating conditions. In the event of an emergency, the valves can be closed to prevent sea water from entering the boat through the drainage system. It is important to check and operate the drain valves at least annually to make sure they are in good condition and operating properly.

You should check the drain system frequently to ensure it is free flowing and that the hoses on the thru-hull fittings are secure and not leaking.

7.2 Hard Top or Tower Drains (Optional)

There is a hole drilled in leg bases to prevent water from being trapped within the leg and provide a wire chase for accessories. A small hole is drilled in the tubing at the base of the other legs, which are not drilled for a wire chase, that allows water to drain.

Note: Always make sure the leg drain holes are clear when the boat is laid up for the winter. Water trapped inside the legs could freeze and cause the legs to split.

7.3 Bilge Drainage and High Water Alarms

The bilge pumps are activated both manually, by switches in the helm station, and automatically, by float switches located next to the pumps. The automatic float switches are connected to the house battery bank. They are protected by “push to reset” circuit breakers in the battery switch panel and remain activated when the battery switches are in the “OFF” position and the batteries are connected. The manual switches are supplied current when the house battery switch is activated. They are protected by a breaker in the DC breaker panel.

All bilge pumps pump water out of thru-hulls located above the waterline in the hull. The rear bilge pump and automatic switch are located near the transom, below the stern fishbox, the mid bilge pump and automatic switch are in the rear engine compartment bilge below the generator and the forward pump and automatic switch are located in the forward bilge compartment and accessed through the hatch in the galley sole.



Stern Bilge Pump and Automatic Switch

The manual bilge pumps should be activated briefly each time the boat is used. This will ensure that they are operating properly and increase the service life of the pumps. The automatic switch should be manually activated to verify operation.

Note: See Electrical Systems for additional information on bilge pump operation.

Note: Any oil spilled in the bilge must be thoroughly removed and properly disposed of before operating the bilge pump. The discharge of oil from the bilge is illegal and subject to a fine.



THE FEDERAL WATER POLLUTION CONTROL ACT PROHIBITS THE DISCHARGE OF OIL OR OILY WASTE INTO OR UPON THE NAVIGABLE WATERS OF THE UNITED STATES OR THE WATERS OF THE CONTIGUOUS ZONE IF SUCH DISCHARGE CAUSES A FILM OR SHEEN UPON, OR A DISCOLORATION OF THE SURFACE OF THE WATER, OR CAUSES A SLUDGE OR EMULSION BENEATH THE SURFACE OF THE WATER. VIOLATORS ARE SUBJECT TO A PENALTY OF \$10,000.

Additional automatic switches, located near each bilge pump, sound an alarm and activate a light at the helm if the bilge water level rises above the normal operating range of the bilge pump automatic switches. The alarm automatic switches are connected to the batteries. They are protected by circuit breakers located on the engine room circuit breaker panel and remain activated when the battery switches are in the “OFF” position and the batteries are connected. These switches should be tested periodically by turning the knob on the side of the switch until the alarm sounds. You should also test the alarm circuit with the test switch in the helm switch panel. If the alarm does not activate, you should find and correct the problem as soon as possible.

7.4 Cockpit and Deck Drains

Scuppers and Hatches

Your boat has two scupper drains located in the rear of the cockpit at the transom. Flaps built into the scuppers help reduce the surge of sea water through the scuppers and into the cockpit.

Water is channeled away from all hatches by a gutter or drain rail system. The water then drains overboard through fittings in the drain rails to thru-hull fittings in the hull sides above the waterline.

Fishbox , Livewell, Freezer and Cockpit Sink Drains

The fishbox below the cockpit floor is drained overboard by a macerator pump out system. The macerator is activated by a momentary switch located in helm switch panel. The transom fishbox is drained by gravity to a thru-hull fitting in the transom.

The livewell, cooler, bait prep sink and the bait freezer are drained by gravity to thru-hull fittings in the hull sides. The overflow in the livewell drain into the overboard drains. These compartments should be flushed out and cleaned after each use.

Note: The macerator discharge pump can only be run dry for a couple of seconds. Allowing the macerator pump to run after the fishbox is empty will cause damage to the pump.

Bridge and Cockpit Storage Compartments

A storage box, located below the lounge seat, is drained by gravity to the bridge deck. The bridge deck drains overboard by drain rails and drains in each side of the bridge deck sole.

Rope Locker Drains

The rope locker drains to the bilge. It is important to inspect the drains frequently to remove any accumulated debris.



Cockpit Scuppers

7.5 Cabin Drains

The galley, head sink, and shower are drained by a sump pump system. An automatic float switch in the sump controls the pump. The sump pump is protected by the shower sump circuit breaker in the battery switch panel. The sump system is activated whenever the batteries are connected to ensure the air conditioner sumps and the shower will drain properly whenever they are activated. After showering, let the cold water flow for a period of time to flush the drainage system of soap residue.

The sump system is located in the forward bilge. The sump has a removable lid to allow the system to be inspected and serviced. It is essential that the sump system be inspected periodically and any accumulated debris removed. Manually activate the system to verify operation.

The drain thru-hull fittings for the sump pump and the sink drains are equipped with ball valves that are always open under normal operating conditions. In the event of an emergency, the valves can be closed to prevent sea water from entering the boat through the shower sump or drain system. It is important to check and operate the valves at least annually to make sure they are in good condition and operating properly. Please review the drainage schematic to become familiar with the location of the sump pump and gravity drain thru-hull valves.

7.6 Drainage System Maintenance

It is essential that the following items be done periodically to maintain proper drainage of your boat:

- Clean the cockpit and bridge drain rails with a hose to remove debris that can block water drainage.
- Clean the hardtop or tower leg drain holes. This is especially important just before winter lay-up.
- Clean the bilge pump strainers of debris and check the bilge for foreign material that can cause the automatic switch to malfunction.
- Frequently test the automatic bilge pump switches for proper operation. This is accomplished by lifting the float switch until the pump is activated. You can also use a garden hose to flood the bilge until the water level is high enough to activate the pump.
- Flush all gravity drains with freshwater to keep them clean and free flowing.
- Clean and inspect the shower and air conditioning drain sump system. Remove accumulated debris and flush with freshwater. Frequently test the automatic pump switch for proper operation.
- Clean and flush the fishbox and cooler storage boxes with soap or a bilge cleaner and freshwater after each use to keep them clean and fresh.
- Operate the thru-hull valves once a month and service as required.

Note: All drains and pumps must be properly winterized before winter lay-up.

Note: Never use harsh chemical drain cleaners in marine drain systems. Permanent damage to the hoses and fittings may result.

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Chapter 8:

VENTILATION SYSTEM

8.1 Cabin Ventilation

Ventilation to the cabin area is provided by three deck hatches. Additionally, there is a 12-volt exhaust blower in the head compartment that provides forced ventilation to that area whenever the blower is activated by the switch on the head compartment wall.

Deck Hatch

The deck hatch is supported in the open position by one or two adjustable hatch adjusters. They are secured in the closed position by one or two cam levers on the inside of the hatch. There is a sliding lock on each cam lever to prevent them from open accidentally.

To open a hatch, release the lock and rotate the cam lever to the open position. Raise the hatch and secure it with the knob on the hatch lifter. To close the hatch, loosen the hatch adjuster and lower the hatch. Secure in the closed position with the two cam levers and slide locks.

Each hatch is equipped with a retractable sunshade and screen. To use the screen, pull the plastic tab for the screen on the side of the hatch and attach it to the plastic tab on the other side of the hatch. To use the sunshade, pull the plastic tab for the sunshade and attach it to the plastic tab on the other side hatch. When the tabs are attached, they can slide in either direction to select the screen or the sunshade. Disconnect the tabs to store the screen and the sunshade or to open and close the hatch.




Deck Hatch



Carbon Monoxide Detector

8.2 Carbon Monoxide and Proper Ventilation



FAILURE TO PROPERLY VENTILATE THE BOAT WHILE THE ENGINES ARE RUNNING MAY PERMIT CARBON MONOXIDE TO ACCUMULATE WITHIN THE CABIN AND OPEN AREAS OF YOUR BOAT. CARBON MONOXIDE IS A COLORLESS AND ODORLESS GAS THAT IS LETHAL WHEN INHALED. CARE MUST BE TAKEN TO PROPERLY VENTILATE THE BOAT AND TO AVOID CARBON MONOXIDE FROM ACCUMULATING IN THE BOAT WHENEVER AN ENGINE IS RUNNING.

A by-product of combustion, carbon monoxide (CO) is invisible, tasteless, odorless, and is produced by all engines and gas heating and cooking appliances. The most common sources of CO on boats are gasoline engines, auxiliary generators and

propane or butane stoves. These produce large amounts of CO and should never be operated while sleeping. The hazard also may be created by a boat nearby whose exhaust fumes are entering your boat. Boats also have a problem due to the “station wagon effect” where engine exhaust fumes are captured in the vacuum or low pressure area, usually the cockpit, bridge deck and cabin, that can be created by the forward speed of the boat.

Boats underway should close all aft facing hatches and doors. The forward facing deck hatches should be open whenever possible to help pressurize the living spaces of the boat. No sleeping in the cabin should be permitted while underway.

Proper ventilation should be maintained on the bridge deck by opening forward clear connector vents, as far as possible to help pressurize the cockpit area. The canvas drop or aft curtain must be removed and the side curtains should be opened or removed to increase air flow and maintain proper ventilation whenever the engines are running. **Under no circumstances should the engines be operating with side curtains closed and the aft or drop curtain installed.**

Extreme caution must be taken while at anchor or in a slip when an auxiliary power generator is operating. Wind still nights can easily allow exhaust fumes, containing high concentrations of CO, from the generator on your boat or from an adjacent boat's generator to enter the boat. The exhaust fumes may enter your boat through open hatches or windows.

A carbon monoxide detector has been installed in your cabin as standard equipment. While a CO detector enhances your protection from CO poisoning, it does not guarantee it will not occur. Do not use the carbon monoxide detector as a replacement for ordinary precautions or periodic inspections of equipment. Never rely on alarm systems to save your life, common sense is still prudent and necessary. Remember, the operator of the boat carries the ultimate responsibility to make sure the boat is properly ventilated and the passengers are not exposed to dangerous levels of carbon monoxide. You should always be alert to the symptoms and early warning signs of carbon monoxide poisoning. You also should read the "Carbon Monoxide Monitoring System" in the Safety Equipment chapter of this manual, and the owner's manual supplied by the CO detector manufacturer for operation instructions and additional information regarding the hazards and symptoms of carbon monoxide poisoning.



ACTIVATION OF THE CARBON MONOXIDE DETECTOR INDICATES THE PRESENCE OF CARBON MONOXIDE (CO) WHICH CAN BE FATAL. EVACUATE THE CABIN IMMEDIATELY. DO A HEAD COUNT TO CHECK THAT ALL PERSONS ARE ACCOUNTED FOR. DO NOT REENTER THE CABIN UNTIL IT HAS BEEN AIRED OUT AND THE PROBLEM FOUND AND CORRECTED.

Periodically test the carbon monoxide alarm per the manufacturer's instructions. Please refer to the carbon monoxide alarm manual or contact the manufacturer for more information on maintaining and calibrating the alarm.

8.3 Engine Compartment Ventilation

All Albemarle inboard boats are equipped with an engine compartment ventilation system consisting of intake ducts, intake blowers and exhaust blowers. The ventilation system is designed to meet or exceed the requirements of the United

States Coast Guard in effect at the time of manufacture and remove fuel vapors and excess heat from the engine room.

Free Air System

A flow of air into the engine compartment is provided by two vents located on either side of the hull. The vents are designed with special baffles that prevent sea water or spray from entering the engine compartment while providing adequate air movement for the engines.

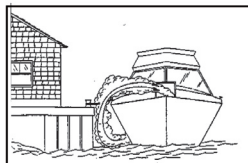
Forced Ventilation

Your boat is equipped with electric intake blowers that provide increased ventilation to the engine compartment. The intake blowers are located on each hull vent. They are activated whenever the engines are running to provide the large volume of fresh air that high performance diesel engines require.

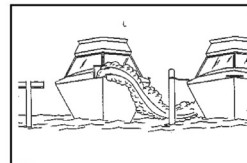
Inspect the blowers frequently to make sure they are operating properly. Always replace worn or defective components with new components of the same type. Refer to the Electrical Systems chapter for more information on blower operation.



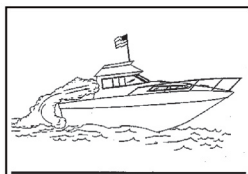
ALWAYS RUN THE EXHAUST BLOWERS WHEN OPERATING THE BOAT BELOW CRUISE SPEEDS OR WHEN THE GENERATOR IS RUNNING TO ENSURE ADEQUATE VENTILATION AND COOLING OF THE ENGINE COMPARTMENT.



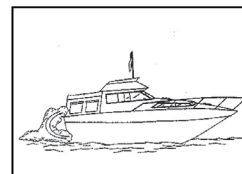
Onboard Generator Exhaust - exhaust accumulates because of bulkhead.



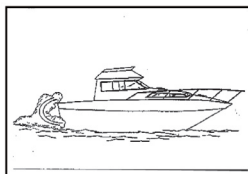
Nearby Generator Exhaust - wind carries exhaust to the other boat



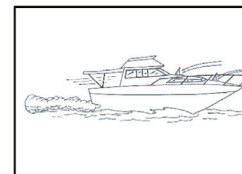
Back Drafting / Station Wagon Effect - at cruising speed with no forward ventilation



Back Drafting / Station Wagon Effect - at cruising speed with canvas closed



Slow Speed or Boat Stopped w/ engines running - CO can accumulate in cabin, cockpit & bridge



Desired Air Flow Through the Boat

8.4 Maintenance

- Periodically lubricate all hinges and latch assemblies with a light oil.
- Periodically clean and coat gasket materials with silicone to help keep them pliable.
- The opening cabin deck hatches are made of acrylic plastic glass. Acrylic glass scratches easily. Never use a dry cloth or glass cleaning solutions on acrylic glass. Use a soft cloth and mild soap and water for routine cleaning. Solvents and products containing ammonia can permanently damage acrylic glass. Please refer to the Routine Maintenance chapter for more information on the proper maintenance for acrylic plastic glass.
- Periodic inspection and cleaning of the engine compartment ventilation ducts is necessary to ensure adequate air circulation. A buildup of leaves, twigs, or other debris can severely reduce ventilation. It also is important to be sure that the drains in the vent baffles are open to prevent excessive sea water from accumulating in the vents and overflowing into the engine compartment.
- The bilge blowers are permanently lubricated and require no maintenance. Blower operation can and should be tested by placing a hand over the exhaust vents. Do not rely on the sound of the blowers. A substantial amount of air should be exhausted by the blower. Frequently check the intake vents for obstructions, preferably before each cruise.

Note: Should blower noise become excessive, the source of the noise should be found and corrected before operating the boat.

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Chapter 9:

EXTERIOR EQUIPMENT

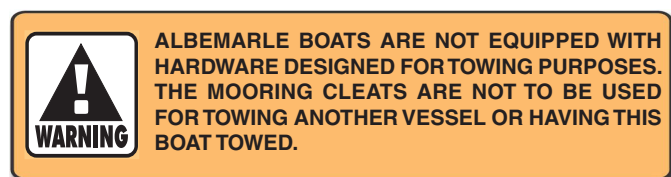
9.1 Deck

Rails and Deck Hardware

The rail system and hardware fittings have been selected and installed to perform specific functions. Bow and hand rails are installed to provide a handhold in certain areas of the boat. You should make sure you keep at least one hand on the handholds as you move about the boat.

Mooring lines should be secured to the cleats and not to rails or stanchions. The stern is equipped with a hawse pipe and cleat system. Mooring lines should be fed through the hawse pipes then secured to the stern cleats. Be sure a clear lead exists when running dock lines or anchor lines. A line inadvertently run around a stanchion or over the rail could cause damage.

Note: All fittings must be inspected periodically for loose fit or wear and damage. Any problems should be corrected immediately.



Bow Pulpit and Roller

The bow pulpit is built into the hull and is equipped with a roller assembly that allows the anchor to be operated and stored at the pulpit. The anchor line is stored in the rope locker and routed out the windlass or deck rope pipe, through the roller and connected to the anchor chain. A cleat or chain binder is provided on the deck near the pulpit to secure the anchor. Always make sure the anchor is properly secured when it is in the stored position on the pulpit.

Anchor Rope Locker

The anchor locker is in the bow of the boat and accessed through a hatch in the forward stateroom. The anchor line is always stored in the rope locker.

The locker is designed for the bow anchor line and not for storing anchors or additional anchor lines. Spare anchors should be stored in one of the storage areas in the cockpit or flybridge.



Windlass and Pulpit Assembly

The anchor locker is drained to the bilge by a drain near the bottom of the locker. It is very important to check the drain frequently to make sure it is clean and free flowing.

Periodically remove the anchor line from the rope locker, rinse it with fresh water and allow it to dry in the sun. Cleaning the anchor line regularly will reduce odors in the anchor locker and increase the life of the line.

The line should also be inspected for abrasions or signs of deterioration. Replace the line if it shows any sign of damage or deterioration. If your boat is equipped with the optional windlass, it is important to replace the anchor line with a new line of the type recommended or supplied by the windlass manufacturer.

Windlass (Optional)

The optional windlass is mounted to the deck near the rear of the pulpit above the rope locker. The anchor is stored on the pulpit and is raised and lowered by the windlass. The anchor line is stored in the rope locker and routed out through the windlass to the anchor chain.

The anchor is lowered by releasing the anchor from the cleat or chain binder near the pulpit and operating a “DOWN” control at the helm, or the optional foot switch at the bow. The windlass control switch is activated by a breaker located at the cabin electrical panel. Another heavy duty circuit breaker in the battery switch panel protects the main circuit for the windlass.

After the anchor is set, the windlass must not be left to take the entire force from the anchor line. Boats lying to their anchor in a high swell or heavy weather conditions will snub on the line. This can cause slippage or apply excessive loads to the windlass. The line should be made fast to a bow cleat to relieve the load on the windlass.

The anchor is hauled in by releasing the line from the bow cleat and operating the “UP” control at the helm or the optional foot switch on the deck near the windlass. Once the anchor is retrieved, independently secure the anchor to the chain binder or a cleat to prevent it from being accidentally released. This is especially important while the boat is under way.

The windlass manufacturer provides an owner’s manual with its product. It is extremely important that you read the manual and become familiar with the proper care and operation of the windlass.



A WINDLASS MUST BE USED WITH CARE. IT IS EXTREMELY IMPORTANT THAT YOU READ THE OWNER’S MANUAL AND BECOME FAMILIAR WITH THE SAFETY INSTRUCTIONS AND PROPER OPERATION OF THE WINDLASS BEFORE USING IT WITH YOUR BOAT. ALWAYS ENSURE THAT LIMBS, FINGERS, HAIR AND CLOTHING ARE KEPT CLEAR OF THE WINDLASS AND ANCHOR LINE DURING OPERATION.



DO NOT USE A WINDLASS AS A SOLE MEANS OF SECURING AN ANCHOR IN THE BOW PULPIT. ALWAYS SECURE THE ANCHOR LINE TO A CLEAT OR CHAIN BINDER BEFORE OPERATING YOUR BOAT.

9.2 Hull

Swim Platform (Optional)

Your boat could be equipped with an optional swim platform and ladder in the stern of the boat. The swim platform should only be installed by the Albemarle factory at the time of construction or by an authorized Albemarle dealer. Improper swim platform installation can damage the boat’s transom or interfere with the transom door.



MOVING PROPELLERS ARE DANGEROUS. THEY CAN CAUSE DEATH, LOSS OF LIMBS, OR OTHER SEVERE INJURY. DO NOT USE THE SWIM PLATFORM OR SWIM LADDER WHILE THE ENGINES ARE RUNNING. STOP THE ENGINES IF DIVERS OR SWIMMERS ARE ATTEMPTING TO BOARD. ALWAYS PROPERLY STORE THE LADDER BEFORE STARTING THE ENGINES.

Trim Tabs

The trim tabs are recessed into the hull at the transom. The trim tabs are an important part of the control systems. Please refer to the Helm Control Systems chapter for detailed information on the trim tabs.

9.3 Cockpit



IN CERTAIN CONDITIONS, OPEN EXTERIOR DOORS AND HATCHES THAT ARE NOT SECURED PROPERLY CAN SLAM CLOSED UNEXPECTEDLY AND CAUSE INJURY TO PASSENGERS OR DAMAGE TO THE BOAT. MOST DOORS AND HATCHES ARE EQUIPPED WITH SPECIAL FASTENERS, HATCH LIFTERS, OR SNAPS AND/OR STRAPS, TO SECURE THEM IN THE OPEN POSITION. ALWAYS MAKE SURE THAT THESE HATCHES AND DOORS ARE PROPERLY SECURED WHENEVER THEY ARE IN THE OPEN POSITION.

Engine Access

Access to the engines is provided by a door and hatch located in the tackle/bait prep center. A gas charged hatch lifter holds the hatch open or closed position and a barrel bolt latch secures the door when it is closed. Always make sure the door and hatch are closed and securely latched before operating the boat.

Diamond plate steps make it easy to enter or exit the engine room. Light is provided by 12-volt lights activated by a switch in the cockpit switch panel.

Tackle/Bait Prep Center

A bait prep center equipped with an insulated ice box or optional freezer and tackle storage is on the starboard side of the cockpit. The hatch is equipped with a gas charged hatch lifter that holds the hatch in the open or closed position. The ice box is drained by gravity to a thru-hull fitting in the hull side above the waterline.

The ice box can be equipped with an optional freezer plate. The freezer unit is supplied electrical current by the AC system and requires AC current from shore power or the generator to operate. The temperature is controlled by an electronic temperature control unit that is located in the engine compartment.

The temperature in the freezer is selected by pressing the set button on the control and selecting the desired temperature. Once the temperature has been set, the control display will change to indicate the temperature in the freezer. The freezer is activated by turning on the Freezer circuit breaker in the AC panel and selecting the temperature on the control unit.

An AC raw water pump provides the water to remove heat from the freezer and the flybridge air conditioner compressor. Therefore, water should be expelled from the thru-hull fitting in hull side whenever the compressors are operating. The intake line for the pump is equipped with a sea strainer that must be checked for debris frequently and cleaned as necessary. The procedure for cleaning strainer is the same as for the generator strainer. Refer to the Electrical Systems and Raw Water System chapters for information on cleaning the sea strainer and the operation of the raw water pump.

You also should refer to the freezer owner's manual for more information on the operation and maintenance of the bait freezer system.

Livewell

A circulating livewell is located on the port side of the cockpit. The hatch is equipped with a gas charged hatch lifter that holds the hatch in the open or closed position. The livewell is supplied by a raw water circulating pump and drains overboard. A stand pipe in the livewell controls the water level. Refer to the Raw Water System chapter for additional information on the livewell system. The livewell is drained by gravity to a thru hull fitting in the hull side above the waterline.

Tackle Lockers

A tackle locker is built into the Tackle/bait prep station and the livewell. Each tackle locker has four removable storage drawers. If tackle lockers are not installed, the compartments will be equipped with locking doors for storing dunnage.



Engine Room Door and Hatch



Livewell

Cable Master (Optional)

The Cable master is designed to mechanically extend, retract and store shore power cable. It is located in the engine compartment below the shore power cord inlet. A switch next to the inlet controls the cable master. When the switch is in the “OUT” position, the shore power cord will continue to extend until the switch is turned off. When the switch is in the “IN” position, the cord will retract until the switch is turned off or the cord is completely retracted. An “In-Limit” switch built into the unit automatically shuts the cable master off when the cable is fully retracted. The cable master is protected by a circuit breaker in the cabin DC panel.

Transom Door and Gate

A transom door and gate is incorporated into the transom. The gate is hinged and can be opened by releasing the latch and lifting the starboard side. The door can be opened when the gate is open or closed. It is secured by a special latch mounted on the inboard side of the door. The door latch has a spring loaded safety pin. When the transom door is closed, make sure the latch is completely closed and that the safety pin is snapped into place to prevent the latch from opening accidentally.

The transom door and gate should only be opened when the boat is not in motion. The door must be latched in either the full “OPEN” or full “CLOSED” position. Never leave the transom door unlatched.

Note: Periodically inspect the transom door and gate fittings for wear, damage, or loose fit. Any problems should be inspected and corrected immediately.



THE TRANSOM DOOR AND GATE SHOULD BE CLOSED AND PROPERLY LATCHED WHENEVER THE ENGINES ARE RUNNING. NEVER OPEN THE TRANSOM DOOR WHILE UNDERWAY OR IN ROUGH SEA CONDITIONS. IN CERTAIN SITUATIONS, AN OPEN TRANSOM DOOR COULD ALLOW A SUBSTANTIAL AMOUNT OF WATER TO ENTER THE COCKPIT CREATING A POTENTIALLY DANGEROUS CONDITION.



OPERATING THE BOAT UNDER POWER WITH THE TRANSOM DOOR AND GATE OPEN MAY ALLOW PERSONS TO FALL OVERBOARD AND INTO BOAT PROPELLERS OR TO BE LOST IN OPEN WATER. ALWAYS CHECK TO MAKE SURE THE TRANSOM DOOR AND GATE IS PROPERLY CLOSED AND LATCHED BEFORE STARTING THE ENGINES AND NEVER OPERATE THE BOAT UNDER POWER WITH THE TRANSOM DOOR AND GATE OPEN.



Cable Master



Transom Door and Gate

Below Deck Stern Fishbox

A fishbox is located in the stern below the cockpit sole. Two flush mounted twist latches secure the hatch when it is closed. When the hatch is open, the fishbox can be removed to provide access to the stern bilge.

The fishbox is drained by a macerator pump located in the bilge and activated by the Fishbox Drain Pump switch at the

helm. Make sure to monitor the water level in the fishbox and turn the pump off as soon as pumping is complete. The pump will be damaged if it is allowed to run dry for more than a few seconds. The fishbox should be pumped out and cleaned after each use. Refer to the Drainage Systems chapter for more information on the fishbox drainage.

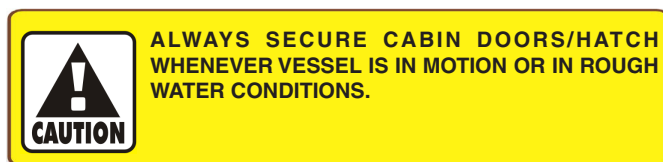
Transom Fishbox

Another insulated fishbox is located in the center of the transom gunnel. The fishbox is drained by gravity to an overboard thru-hull fitting in the transom. It is accessed through two hatches in the stern gunnel.

Cabin Door

The cabin door is made of Fiberglass. A lockable latch secures the door and hatch in the closed position. A special latch secures the door in the open position.

It is very important that the cabin door is secured properly in the open or closed position. The door is heavy and if the door is not properly latched, it could swing when the boat rocks and pinch someone's fingers between the door and the bulkhead or damage the door. Always make sure the door is properly latched in the open or closed position before operating the boat.



9.4 Flybridge and Helm

Helm

The steering, engine controls, engine instruments and switches for exterior equipment and navigation lights are located on the helm station. The helm station is located in the center of the flybridge to provide improved visibility, more room for electronics and a more functional flybridge arrangement.

The steering helm and engine controls are located on the rear of the center console. The helm switch panel is on the starboard side of the helm and the engine run/stop switches, the engine start switches and trim tab switches are located on a separate panel below the steering wheel.

The Molded-in, retractable electronics storage is located forward of the engine controls. Electric actuators controlled by a switch in the helm raise or lower the modules. Access to service the controls or to install or service electronics is provided through a door in the helm.

Standard Helm Seats

The helm seats are pedestal seats that swivel and adjust fore and aft. The seat height on the pedestal is also adjustable.



Helm

There are two levers and one tension knob on the seat base. Lifting the lever located at the front of the seat base allows the seat to be adjusted fore and aft. Releasing the lever locks the seat in that position. Lifting the lever on the starboard side of the seat base releases the pivot lock and allows the helm seat to be swiveled on the pedestal. The helm seat will automatically lock when it is swiveled back to the operating position. The friction knob adjusts the tension of seat base on the pedestal and is also located on the port side of the seat. It should be adjusted to allow the seat to be swiveled when the swivel lock is released and tight enough to eliminate play between the seat base and the pedestal.

The pedestal height can be changed by pulling the spring loaded release pin on the pedestal and sliding it up or down to the next preset position. Release the pin as the pedestal is sliding and the pin will automatically lock into place.

Teak Helm Chair (Optional)

The helm seat is a pedestal seat that swivels and adjusts fore and aft. The height of the footrest on the pedestal is also adjustable.

There is one tension adjuster and a spring loaded lever on the seat base. Lifting the lever located at the front of the seat base allows the seat to be adjusted fore and aft. Releasing the lever locks the seat in that position. Loosening the tension adjuster on the starboard side of the seat base allows the helm seat to be swiveled on the pedestal. The tension can be adjusted to lock the seat in the desired position or control how easily the seat will swivel. It should always be adjusted tight enough to eliminate play between the seat base and the pedestal.

The pedestal footrest height can be changed by loosening the tension adjuster on the port side of the footrest and sliding it up or down to the desired position. It is important to make sure the footrest is set parallel to the tension adjuster handle before adjusting the tension and that the handle is rotated down before swiveling the footrest. Otherwise, the handle will hit the footrest when it is rotated and damage the finish.

The back rest on the helm chair can easily be removed by releasing the two quick release pins on the back rest brackets. Push the button in the center of the pins and slide them out of the brackets. The back rest can then be lifted out of the brackets.

Lounge Seats

There is a lounge seat forward of the helm and on the port side of the flybridge. A large storage area is located below each lounge seat. The bottom seat cushions are hinged to allow the cushions to be raised and drop in front of the lounge for complete access to the storage compartment. To access the storage compartment, lift the front of the seat cushion and pull it toward you. The hinge will rotate forward and allow the cushion to clear the front of the lounge. Then lower the cushion until it rests against the vertical face of the lounge base.

Storage Compartments and Optional Air Conditioner

There is a large storage compartment in the forward section of the flybridge. Two doors provide access to the compartment. If your boat is equipped with the optional flybridge air conditioner it will be installed in this compartment.

The air conditioning unit is the reverse cycle type and operates on AC power. It is equipped with reverse cycle heat and can be operated as a cooling or heating unit and is protected by circuit breakers in the cabin 240-volt AC breaker panel.

To operate, make sure the thru-hull valve for the air conditioner raw water supply pump, located in the rear of the engine compartment bilge, is on. Turn the Air Conditioner breakers in the AC breaker panel to the "ON" position. The air conditioning or heat then will be controlled by the electronic control panel in the console near the helm. When activated, water should continuously flow from the overboard drain thru-hull.

The air conditioning system produces heat when it is operated in the reverse cycle mode. The ability of the unit to produce heat is affected by the temperature of the seawater. As the seawater temperature lowers, the air conditioner's ability to produce warm air decreases. When the seawater temperature drops below 40 - 45 degrees, the air conditioner will not be able to produce heat. You should not operate the air conditioner to produce heat when the water temperature is below 40 degrees.

The air conditioning unit creates condensation that drips into the pan at the base of the unit. A hose attached to the pan drains the water to the flybridge drain system. The condensation pan should be checked periodically to make sure it is draining properly. The drain hoses and condensation pan should be flushed clean if they become restricted by mold or debris.

The intake line for the pump is equipped with a sea strainer that must be checked for debris frequently and cleaned as neces-



Flybridge Storage Compartment and Air Conditioner Vents



Flybridge Air Conditioner Control Panel

sary. The procedure for cleaning the strainer is the same as for the generator sea strainer. Refer to the Electrical Systems and Raw Water System chapters and the for information on the air conditioning pumps and cleaning the sea strainers.

You also should refer to the air conditioner owner's manual for additional operating and maintenance instructions.

Note: Air conditioners use surface water as a cooling medium. The boat must be in the water and the raw water supply system must be properly activated prior to use. Operation without proper cooling could cause the air conditioning circuit breaker to trip and could cause system damage. Always check for proper water flow out of the air conditioning pump discharge thru-hull when the air conditioner is operating.

9.5 Half Tower and Tuna Tower

The half tower and tuna tower consists of a laminated fiberglass top mounted to a welded aluminum frame that is bolted to the deck. They can be equipped with spreader lights, courtesy lights and rod holders. The top and frame is designed to accommodate radio and GPS antennas, radar antennas and navigation lights. It could also be equipped with optional outriggers. Towers are equipped with an operational upper control station and a sunshade for the upper station.

Electronics antennas must be mounted to the hard top between the front and rear legs. Antennas mounted on tuna towers may require extensions if they are mounted on the hard top. There is a molded in radar antenna mount on the forward part of the hard top.

Do not mount any antennas or equipment to the brow area forward of the front legs. The hard top frame is not designed to support the weight of accessories in this area and could be damaged. The rear legs are used as the wire chase for lights and antennas mounted to the hard top.

The warranty for the half tower or tuna tower will be void if the structure is modified in any way or if heavy accessories like life rafts are mounted to the top. Additionally, if items like radar antennas, spotlights and other accessories are mounted in the wrong location, the warranty could be void. If you intend to add equipment or make modifications to the half tower or tuna tower, you should contact Albemarle Customer Service to make sure the equipment you would like to add or the intended modification will not void the warranty on the fiberglass top or the aluminum structure.

Because the aluminum frames vary slightly, the side curtains, front clear connector and drop curtain are custom made to each boat at the factory. To install the curtains, slide the front clear connector into the slide track at the front of the top and snap it to the bridge beginning with the center snaps. The clear connector will have to be stretched just enough to pull out the wrinkles to reach the snaps on the bridge.



Half Tower

Once the clear connector is completely installed, the side curtains can be put on. Slide the side curtains into the slide tracks on each side of the top and attach them to the zippers on the front connector. Snap the curtains to the bridge sides beginning with the forward snaps. The side curtains will have to be stretched slightly to pull out the wrinkles and reach the snaps.

If you have an optional drop curtain, slide it into the slide track on the back of the hard top and attach it to the rear of the side curtains. Snap the drop curtain to the bridge.

Note: Cold weather can make the clear vinyl material on the curtains stiff and difficult to stretch to the snaps. This can be particularly difficult with new canvas that has been stored off the boat. Laying the curtains in the sun for 30 minutes during the heat of the day will make installing them much easier in cold weather.

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Chapter 10:

INTERIOR EQUIPMENT

10.1 Head Compartment & Marine Toilet

The head compartment is equipped with a sink with a hot and cold faucet. There is a shower with a removable shower head. The shower head is equipped with a valve that allows the shower water to be turned on and off without affecting the temperature to conserve water while showering. Make sure the shower sump breaker on the DC panel is on before using the shower.

There is storage behind the doors under the sink. Ventilation is provided by an air conditioning duct and an exhaust fan. There is also a 12-volt overhead light and 120-volt G.F.I. duplex outlet.

Marine Head System

Your boat is equipped with a VacuFlush marine head system as standard equipment. VacuFlush systems use a small amount of water (one pint to one quart) and vacuum which is generated by a 12-volt vacuum pump to flush. The toilet is connected to the pressurized fresh water system. Using fresh water results in less odor in the head compartment.

To use the toilet, make sure the Head breaker on the cabin DC breaker panel is on. Then add water to wet the bowl by depressing the foot activated flush lever slightly until the desired water level is reached. Flush the toilet by activating the flush lever all the way for approximately three seconds or until contents clear the bowl. A sharp popping noise is normal when the vacuum seal is broken and flushing action begins. It is also normal for a small amount of water to remain in the bowl after flushing.

The waste is transferred into the holding tank where it remains until it is pumped out by a waste dumping station or the over-board macerator discharge system. The waste moves through a one-inch opening in the toilet base. Incoming air fragments the waste as it passes through the base opening. This process eliminates the need for macerators or mechanical motors in the toilet base.

The vacuum generator is mounted on the holding tank and contains stored vacuum. System vacuum is monitored by a vacuum switch which is located on the vacuum generator tank. When the switch senses a drop in vacuum in the system, it automatically signals the pump to energize and bring the vacuum back to operating level. This process is normally completed in less than two minutes.



Head Compartment



Sealand Head

It is normal for the stored vacuum to leak down slightly between flushes, causing the vacuum pump to run for a short period. The pump should not run more than once every three hours after the last flush for recharging the system. A holding tank fluid level monitor and macerator pump out switch is located in a panel near the sink. Please refer to the toilet manufacturer owner's manual for more information on the operation of the marine head system.

Holding Tank and Macerator Discharge Pump

The holding tank and vacuum generator is located in the forward bilge below the cabin floor. The overboard macerator discharge pump is located near the holding tank.

When the tank is full, the tank monitor will show full and the vacuum pump will not run. The tank must either be pumped out by an approved waste dumping station through the waste deck fitting or be pumped overboard with the macerator discharge pump, when legal to do so.

To operate the macerator discharge pump, open the ball valve at the overboard discharge thru-hull fitting in the forward bilge. Then activate the momentary macerator switch located in the holding tank monitor panel in the head compartment, until the tank is emptied. Release the switch and close the discharge ball valve when pumping is complete.

Note: The macerator discharge pump can only be run dry for a couple of seconds. Allowing the macerator pump to run after the holding tank is empty will cause damage to the pump.



Holding Tank, Vacuum Pump and Overboard Discharge Pump



Galley



IN MANY AREAS IT IS ILLEGAL TO FLUSH HEAD WASTE DIRECTLY OVERBOARD. VIOLATION OF THESE POLLUTION LAWS CAN RESULT IN FINES OR IMPRISONMENT. ALWAYS KNOW THE LAW FOR THE AREAS IN WHICH YOU BOAT. NEVER DUMP HEAD OR HOLDING TANK WASTE OVERBOARD ILLEGALLY.

Maintenance

The head should be cleaned and inspected for leaks regularly.

The holding tank should be pumped out and flushed as needed. Periodically add chemical to the head to help control odor and to chemically break down the waste. The vent hose is equipped with a charcoal filter to reduce odors. During normal operation, the filter should be changed annually. If the holding tank is allowed to become overfilled, waste will get into the charcoal filter and plug it. If this happens, the filter will have to be replaced before the head system can be reactivated. See the manufacturer owner's manual for additional operating and maintenance information.

10.2 Galley

Cabinet Door and Drawer Latches

Most cabinet doors and drawers in the cabin are secured in the closed position with special latches that are flush to door or drawer when latched. To open, press and release the knob. The knob will pop out one inch, releasing the locking mechanism and providing a means to pull the door or drawer open. To close, make sure the door is completely closed and push the knob in. The knob will stay in and the locking mechanism will be activated.

Light Switches and Salon Air Conditioner Control Panel

The switches for the 12-volt lights in the galley and stateroom companionway are located above the microwave oven on the bulkhead in the galley. Refer to the air conditioner section of this chapter for more information on the salon air conditioner.

Galley and Sink

The galley is equipped with storage and a fresh water sink with hot and cold faucets. A reverse osmosis filtering system located in the forward bilge provides drinking water to a separate faucet on the sink and to the ice maker in the salon.

The single lever sink faucet has a removable spray head. Water is supplied to the sink by a 12-volt pump located in the forward bilge. When activated by the water pressure breaker in the 12-volt panel, the water system will operate much like the water system in a home. An automatic pressure sensor keeps the system pressurized. The sink drains overboard through the cabin drain system. See the Fresh Water System chapter for more information on operating the fresh water system.

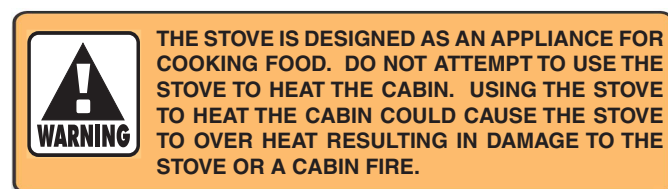
The sink counter tops are made of corian and there is a microwave mounted in the bulkhead near the steps from the salon to the galley. Storage cabinets and drawers are located above and below the sink and counter top.

The AC breaker panel and generator control panel is located in a cabinet built into the galley counter near the steps to the staterooms. Lighting is provided by windows in the salon and 12-volt lights above the galley.

Stove

The galley is equipped with a dual burner electric stove recessed into the counter top. To activate the stove, make sure the stove breaker in the AC breaker panel is on and remove the stove cover. Then turn the control knob on the stove clockwise to turn the burner on. A manual for the stove is included with your boat. It is extremely important that you read the manual and become familiar with the proper care and operation of the stove before attempting to use it.

After cooking, be sure the elements are turned off. Always be sure the burners are off and allowed to cool before placing the cover back on the stove.



Refrigerator (AC Only)

An AC refrigerator is supplied as standard equipment and is mounted in the galley. The freezer unit is supplied electrical current by the AC system and requires electrical current from shore power or the generator to operate. The refrigerator is controlled by a panel inside the top drawer. Latches on the starboard side of each drawer secure the drawers while the boat is under way. Always make sure the drawers are latched securely before operating the boat. Refer to the refrigerator owner's manual for additional operating and maintenance instructions.



Stove



Refrigerator Drawer and Control Panel

Microwave Oven

A microwave oven is provided as standard equipment. The microwave operates on AC power and is protected by the microwave breaker in the AC breaker panel. Please refer to the microwave owner's manual for detailed information on the microwave oven installed in your boat.

10.3 Main Salon

Cabin Light Switches

Most of the cabin lights are controlled by switches on the cabin walls. Some of the lights are controlled by electronic dimmer switches. Pressing and holding the top of the switch will turn the lights on and make them brighter. Pressing and holding the bottom of the switches will dim the lights or turn them off.

Ice Maker and DC Breaker Panel

The ice maker and DC breaker panel are built into a cabinet in the salon near the cabin door. Water is supplied to the ice maker by the in the fresh water system. It operates on AC power only and is protected by the Ice Maker breaker in the AC breaker panel. A switch located just below the ice maker door turns the unit on or off.

The reverse osmosis filtering system supplies the water for the ice maker. Make sure the freshwater pump is activated and there is water in the freshwater system before turning on the ice maker.

The ice maker door has a special latch to secure the door while under way; make sure the door is properly secured whenever the boat is moving.

Refer to the ice maker owner's manual for additional operating and maintenance instructions.

Settee Seat and Dinette Table

The dinette is on the port side of the cabin. It is equipped with a table and a lounge seat. The air conditioner for the salon and storage is below the bottom cushions. The air conditioning unit is located below the aft cushion and an area for storage is below the forward cushions.

The TV and stereo is built into the wall at the rear end of the dinette. The stereo is activated by the DC electrical panel and the TV is activated by the outlets breaker on the AC panel.

The table is raised and lowered by an electric actuator activated by a switch on the cabin wall. Push the top of the switch to raise the table and the bottom of the switch to lower it. The table should be lowered to the full down position whenever the boat is run offshore or in heavy sea conditions.

Daylight and fresh air is provided to this area by an overhead opening hatch. Additional lighting is provided by 12-volt lights.

Lounge Seat and Berth

Another lounge seat that converts to a double berth is located on the starboard side of the salon. One section of the salon seat folds out to make the berth and there is storage below the cushion on the other section.

10.4 Cabin Air Conditioners

The air conditioning units are the reverse cycle type and operate on AC power. The units are equipped with reverse cycle heat and can be operated as a cooling or heating unit. There is an air conditioner for the main salon and one for the master stateroom. They are protected by circuit breakers in the 240-volt AC breaker panel.



Cabin DC Breaker Panel and Ice Maker

To operate, make sure the thru-hull valve for the air conditioner raw water supply pump located in the forward bilge is on. Turn the Air Conditioner breakers in the AC breaker panel to the "ON" position. The air conditioning or heat then will be controlled by the electronic control panels in the main salon and the master stateroom. When activated, water should continuously flow from the overboard drain thru-hull.

The air conditioning system produces heat when it is operated in the reverse cycle mode. The ability of the unit to produce heat is affected by the temperature of the seawater. As the seawater temperature lowers, the air conditioner's ability to produce warm air decreases. When the seawater temperature drops below 40 - 45 degrees, the air conditioner will not be able to produce heat. You should not operate the air conditioner to produce heat when the water temperature is below 40 degrees.

The air conditioner for the main salon is below the port lounge seat. The air conditioner for the master stateroom is below the berth. The air conditioning compressor unit in the forward bilge creates condensation that drips into the pan at the base of the unit. A hose attached to the pan drains the water to the cabin drain sump system, also in the forward bilge. The sump

system must be activated when the air conditioner is operating. It is normal for some water to be in the pan whenever the air conditioner has been used. The condensation pan should be checked periodically to make sure it is draining properly. The drain hoses, condensation pan and sump should be flushed clean if they become restricted by mold or debris.

You should always keep the cabin door closed when operating the air conditioner. If the cabin door is left open, it could cause the air conditioner units to run continuously and not cycle enough to defrost the coiling condenser. This could cause the coils to develop enough ice to reduce the unit's ability to cool the boat.

The intake line for the pump is equipped with a sea strainer that must be checked for debris frequently and cleaned as necessary. The procedure for cleaning the strainer is the same as for the generator sea strainer. Refer to the Electrical Systems and Raw Water System chapters and the for information on the air conditioning pumps and cleaning the sea strainers.

You also should refer to the air conditioner owner's manual for additional operating and maintenance instructions.

Note: Air conditioners use surface water as a cooling medium. The boat must be in the water and the raw water supply system must be properly activated prior to use. Operation without proper cooling could cause the air conditioning circuit breaker to trip and could cause system damage. Always check for proper water flow out of the air conditioning pump discharge thru-hull when the air conditioner is operating.



Salon Air Conditioner



Air Conditioner Control Panel

10.5 Second Stateroom

The second stateroom is located between the galley and the master stateroom. It has twin bunks, a hanging locker, and a night stand with storage drawers. Additional storage is located below the lower berth. Lighting is provided by 12-volt overhead lights and recessed indirect lighting. The lights are activated by switches near the stateroom door.

A wet locker is located in the companion way across from the second stateroom door.

10.6 Master Stateroom

The master stateroom is located in the bow area, forward of the galley. The stateroom has a large berth set against the forward bulkhead. Hatches in the berth below the mattress provides access to the air conditioner and storage. Another hatch in the forward bulkhead provides access to the rope locker. There is also two storage drawers on the aft end of the berth.

A cedar lined hanging locker is located on the port side of the stateroom door. The TV, CO detector and control for the air conditioner is located on the wall above the hanging locker door.

Daylight and fresh air is provided to this area by an overhead opening hatch. The hatch is equipped with a retractable screen and sunshade. Additional lighting is provided by two 12-volt lights in the ceiling that are controlled by dimmer switches on forward bulkhead and near the door to the salon.

Central Vacuum

The central vacuum, hose and accessories are located in a compartment in the companion way for the master stateroom. The vacuum is activated by the Vacuum Cleaner breaker in the AC panel. The outlet for the hose is on vacuum. Refer to the manufacturer's owner's manual for more information on the operation and maintenance of the central vacuum cleaner.

Carbon Monoxide Detector

A carbon monoxide (CO) detector is installed in the cabin. If excess carbon monoxide fumes are detected, an audible beeping will sound indicating the presence of the toxic gas.

A by product of combustion, carbon monoxide is invisible, tasteless, odorless, and is produced by all engines, heating and cooking appliances. The most common sources of CO on boats are the engines and auxiliary generators and propane or butane stoves. These produce large amounts of CO and should never be operated while sleeping.

Please read the owner's manual supplied by the detector manufacturer for operation instructions and additional information regarding the hazards of carbon monoxide gas. Also read more about carbon monoxide, carbon monoxide detectors, and proper ventilation in the Ventilation Systems and Safety Equipment chapters in this manual. This is especially essential if your boat is equipped with the optional generator. If you did not receive a manual for your carbon monoxide detector, please contact the Albemarle Customer Service Department.



ACTIVATION OF THE CARBON MONOXIDE DETECTOR INDICATES THE PRESENCE OF CARBON MONOXIDE (CO) WHICH CAN BE FATAL. EVACUATE THE CABIN IMMEDIATELY. DO A HEAD COUNT TO CHECK THAT ALL PERSONS ARE ACCOUNTED FOR. DO NOT REENTER THE CABIN UNTIL IT HAS BEEN AIRED OUT AND THE PROBLEM FOUND AND CORRECTED.



Central Vacuum

10.7 Cabin Woodwork

Cabin Floors and Steps

The galley floor is made of teak and holly. The steps are made of solid teak. There is a hatch in the galley floor near the companion way steps that provides access to the forward bilge and the equipment installed there.

The floor and steps are finished with a high quality urethane finish that will provide years of protection with proper care and treatment. It is important to avoid tracking sand and dirt on the cabin floor and steps. Sand and dirt acts like sand paper and will eventually sand off the finish in the traffic areas. The wood can be sanded and refinished as necessary.

Use caution when varnishing wood steps. The wood grain is a natural nonskid and too much varnish or polyurethane will fill the grain and make the wood slippery. You should use a satin or flat varnish and only apply one or two coats.

The wood floors and steps can be vacuumed and cleaned with a mixture of water and Murphy's Oil Soap. Wipe the wood dry with a clean towel.



Cabin Woodwork

Walls, Cabinets and Trim

The hardwood used for the cabin walls and cabinets is finished with a high quality varnish. It can be routinely cleaned with a damp cloth. For heavy duty cleaning, use a mixture of water and Murphy's Oil Soap to clean the wood and wipe it dry with a clean towel. Apply a furniture polish to add luster and help to preserve the finish.

Chapter 11: SAFETY EQUIPMENT

11.1 General

Your boat and inboard engines have been equipped with safety equipment designed to enhance the safe operation of the boat and to meet U.S. Coast Guard safety standards. The Coast Guard or state, county, and municipal law enforcement agencies require certain additional accessory safety equipment on each boat. This equipment varies according to length and type of boat and type of propulsion. The accessory equipment typically required by the Coast Guard is described in this chapter. Some local laws require additional equipment. It is important to obtain “Federal Requirements And Safety Tips for Recreational Boats,” published by the Coast Guard, and copies of state and local laws, to make sure you have the required equipment for your boating area.

Your boat is equipped with engine alarms, an automatic fire extinguishing system and cabin monitoring equipment. These systems are designed to increase your boating safety by alerting you to potentially serious problems in the primary power systems, the engine compartment, and the cabin. Alarm systems are not intended to lessen or replace good maintenance and precruise procedures.

This chapter also describes safety related equipment that could be installed on your boat. This equipment will vary depending on the type of engines and other options installed by you or your dealer.

11.2 Engine Alarms

Your boat is equipped with engine alarms that monitor water temperature and oil pressure. The alarms are equipped with a buzzer and/or a light located in the helm. The alarm will sound if the water temperature reaches 205 degrees F. or the oil pressure drops below 6 P.S.I.

The Cat Marine Power Display is installed with most Caterpillar engines. It monitors RPM, oil pressure, coolant temperature, battery voltage, turbo boost pressure, transmission temperature, transmission pressure, fuel consumption and water in the fuel filter. If there is a problem with one of these systems, it will sound an alarm and a diagnostic flag appears on the screen until the problem is found and resolved.

If the alarms sound:

- Immediately throttle the engines back to idle.
- Shift the transmissions to neutral.



- Monitor the engine gauges to determine the cause of the problem.
- If necessary, shut off the engines and investigate until the cause of the problem is found.
- If the boat is equipped with water sensors in the fuel filters, be sure to check them for excessive water.

11.3 Neutral Safety Switch

Every control system has a neutral safety switch incorporated into it. This device prohibits the engines from being started while the shift lever is in any position other than the neutral position. If the engines will not start, slight movement of the shift levers may be necessary to locate the neutral position and disengage the safety cutout switch. Control or cable adjustments may be required to correct this condition should it persist. See your Albemarle dealer for necessary control and cable adjustments. Please refer to the Helm Control Systems chapter for more information on the neutral safety switch.

11.4 Required Safety Equipment

Besides the equipment installed on your boat by Albemarle, certain other equipment is required by the U.S. Coast Guard to help ensure passenger safety. Items like a sea anchor, working anchor, extra dock lines, flare pistol, life vests, a line permanently secured to your ring buoy, etc., could at some time save your passengers' lives, or save your boat from damage. Refer to the “Federal Requirements And Safety Tips For Recreational Boats” pamphlet for a more detailed description of the required equipment. You also can contact the U.S. Coast Guard Boating

Safety Hotline, 800-368-5647, for information on boat safety courses and brochures listing the Federal equipment requirements. Also, check your local and state regulations.

The Coast Guard Auxiliary offers a “Courtesy Examination.” This inspection will help ensure that your boat is equipped with all of the necessary safety equipment. The following is a list of the accessory equipment required on your boat by the U.S. Coast Guard:

Personal Flotation Devices (PFDs)

PFDs must be Coast Guard approved, in good and serviceable condition, and of appropriate size for the intended user. Wearable PFDs must be readily accessible, meaning you must be able to put them on in a reasonable amount of time in an emergency. Though not required, the Coast Guard emphasizes that PFDs should be worn at all times when the vessel is underway. Throwable devices must be immediately available for use. All Albemarle boats must be equipped with at least one Type I, II or III PFD for each person on board, plus one throwable device (Type IV).

Visual Distress Signals

All boats used on coastal waters, the Great Lakes, territorial seas, and those waters connected directly to them, must be equipped with Coast Guard approved visual distress signals. These signals are either Pyrotechnic or Non-Pyrotechnic devices.

Pyrotechnic visual distress signals:

Pyrotechnic visual distress signals must be Coast Guard approved, in serviceable condition, and readily accessible. They are marked with a date showing the service life, which must not have expired. A minimum of three are required. Some pyrotechnic signals meet both day and night use requirements. They should be stored in a cool, dry location. They include:

- Pyrotechnic red flares, hand held or aerial.
- Pyrotechnic orange smoke, hand-held or floating.
- Launchers for aerial red meteors or parachute flares.



PYROTECHNICS ARE UNIVERSALLY RECOGNIZED AS EXCELLENT DISTRESS SIGNALS. HOWEVER, THERE IS POTENTIAL FOR INJURY AND PROPERTY DAMAGE IF NOT PROPERLY HANDLED. THESE DEVICES PRODUCE A VERY HOT FLAME AND THE RESIDUE CAN CAUSE BURNS AND IGNITE FLAMMABLE MATERIAL. PISTOL LAUNCHED AND HAND-HELD PARACHUTE FLARES AND METEORS HAVE MANY CHARACTERISTICS OF A FIREARM AND MUST BE HANDLED WITH CAUTION. IN SOME STATES THEY ARE CONSIDERED A FIREARM AND PROHIBITED FROM USE. ALWAYS BE EXTREMELY CAREFUL AND FOLLOW THE MANUFACTURER'S INSTRUCTIONS EXACTLY WHEN USING PYROTECHNIC DISTRESS SIGNALS.

Non-Pyrotechnic Devices

Non-Pyrotechnic visual distress signals must be in serviceable condition, readily accessible, and certified by the manufacturer as complying with U.S. Coast Guard requirements. They include:

- **Orange Distress Flag (Day use only)**
The distress flag is a day signal only. It must be at least 3 x 3 feet with a black square and ball on an orange background. It is most distinctive when attached and waved from a paddle or boat hook.
- **Electric Distress Light (Night use only)**
The electric distress light is accepted for night use only and must automatically flash the international SOS distress signal. Under “Inland Navigation Rules,” a high intensity white light flashing at regular intervals from 50-70 times per minute is considered a distress signal.

Sound Signaling Devices

The navigation rules require sound signals to be made under certain circumstances. Recreational vessels also are required to sound fog signals during periods of reduced visibility. Therefore, you must have some means of making an efficient sound signal.

Navigation Lights

Recreational boats are required to display navigation lights between sunset and sunrise and other periods of reduced visibility (fog, rain, haze, etc.) Navigation lights are intended to keep other vessels informed of your presence and course. Your boat is equipped with navigation lights required by the U.S. Coast Guard at the time of manufacture. It is up to you to make sure they are operational and turned on when required.

Fire Extinguishers

Boats over 40 feet are required to carry two or three fire extinguishers, depending on the type of fire extinguishers used. Coast Guard approved fire extinguishers are hand-portable, either B-I or B-II classification and have a specific marine type mounting bracket. It is recommended the extinguishers be mounted in a readily accessible position.

Fire extinguishers require regular inspections to ensure that:

- Seals & tamper indicators are not broken or missing.
- Pressure gauges or indicators read in the operable range.



- There is no obvious physical damage, corrosion, leakage or clogged nozzles.

Refer to the “Federal Requirements And Safety Tips For Recreational Boats” pamphlet or contact the U.S. Coast Guard Boating Safety Hotline, 1-800-368-5647, for information on the type and size fire extinguisher required for your boat.

Please refer to the information provided by the fire extinguisher manufacturer for instructions on the proper maintenance and use of your fire extinguisher.



INFORMATION FOR AGENT FE-241 FIRE EXTINGUISHERS IS PROVIDED BY THE MANUFACTURER. IT IS ESSENTIAL THAT YOU READ THE INFORMATION CAREFULLY AND COMPLETELY UNDERSTAND THE SYSTEM, IN THEORY AND OPERATION, BEFORE USING YOUR BOAT.

Bilge and Fuel Fires

Fuel compartment and bilge fires are very dangerous because of the presence of gasoline or diesel fuel in the various components of the fuel system and the possibility for explosion. You must make the decision to fight the fire or abandon the boat. If the fire cannot be extinguished quickly or it is too intense to fight, abandoning the boat may be your only option.

If you find yourself in this situation, make sure all passengers have a life preserver on and go over the side and swim well upwind of the boat. This will keep you and your passengers well clear of any burning fuel that could be released and spread on the water as the boat burns or in the event of an explosion. When clear of the danger, check about and account for all those who were aboard with you. Give whatever assistance you can to anyone in need or in the water without a buoyant device. Keep everyone together in a group for morale and to aid rescue operations.



ALL TYPES OF FUEL CAN EXPLODE. IN THE EVENT OF A FUEL COMPARTMENT OR BILGE FIRE, YOU MUST MAKE THE DIFFICULT DECISION TO FIGHT THE FIRE OR ABANDON THE BOAT. YOU MUST CONSIDER YOUR SAFETY, THE SAFETY OF YOUR PASSENGERS, THE INTENSITY OF THE FIRE AND THE POSSIBILITY OF AN EXPLOSION IN YOUR DECISION.

11.5 Automatic Fire Extinguishing System

The engine compartment is equipped with an automatic fire extinguishing system. The equipment has been chosen and located to provide sufficient volume and coverage of the entire engine compartment area. While the system ensures excellent

bilge fire protection, it does not eliminate the U.S. Coast Guard requirement for hand held fire extinguishers.

When the ignition switch is on, the green light on the fire extinguisher monitor panel will be on. The green light indicates that the system is charged and ready.

Diesel powered boats have an engine cut out circuit that automatically shuts down the engines when the system is activated. The red light on the fire extinguisher control panel will light and an alarm will sound if this should occur. When sufficient time has elapsed for the fire to be extinguished and a flashback is no longer possible, find and fix the problem, then the override switch on the control panel can be moved to the “OVERRIDE” position and the engines can be restarted.



Typical Automatic Fire Extinguisher Monitor Panel & Override Switch



IF ACTIVATION SHOULD OCCUR, IMMEDIATELY SHUT DOWN ALL ENGINES. TURN OFF ALL ELECTRICAL SYSTEMS, POWERED VENTILATION AND EXTINGUISH ALL SMOKING MATERIALS. DO NOT OPEN THE ENGINE COMPARTMENT HATCH IMMEDIATELY!! THIS FEEDS OXYGEN TO THE FIRE AND FLASH BACK COULD RESULT. ALLOW THE EXTINGUISHING AGENT TO SOAK THE ENGINE COMPARTMENT FOR AT LEAST 15 MINUTES AND WAIT FOR HOT METALS OR FUELS TO COOL BEFORE CAUTIOUSLY INSPECTING FOR CAUSE OR DAMAGE. HAVE AN APPROVED PORTABLE FIRE EXTINGUISHER AT HAND AND READY FOR USE. DO NOT BREATHE FUMES OR VAPORS CAUSED BY THE FIRE!!

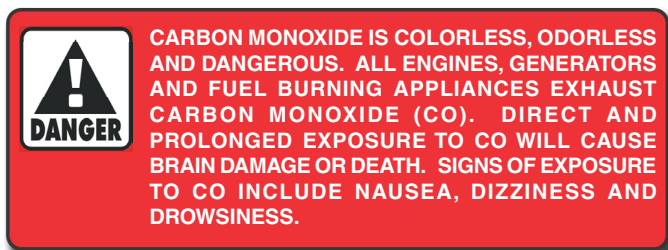


DIESEL ENGINES WILL CONSUME EXTINGUISHING AGENT. IF THE SYSTEM DISCHARGES THE ENGINES MUST BE IMMEDIATELY SHUT DOWN MANUALLY. IF A DIESEL ENGINE IS ALLOWED TO RUN IN THIS SITUATION, IT WILL CONSUME THE EXTINGUISHING AGENT AND FLASH BACK COULD RESULT.



DIESEL ENGINES WILL CONSUME EXTINGUISHING AGENT. IF THE SYSTEM DISCHARGES AND THE ENGINES DO NOT AUTOMATICALLY SHUT DOWN, THEY MUST BE IMMEDIATELY SHUT DOWN MANUALLY. IF A DIESEL ENGINE IS ALLOWED TO RUN IN THIS SITUATION, IT WILL CONSUME THE EXTINGUISHING AGENT AND FLASH BACK COULD RESULT.

11.6 Carbon Monoxide Monitoring System



The carbon monoxide (CO) detector is installed in the cabin as standard equipment and warns the occupants of dangerous accumulations of carbon monoxide gas. If excess carbon monoxide fumes are detected, the detector will sound an alarm indicating the presence of the toxic gas.

Should a very high level of carbon monoxide exist, the alarm will sound in a few minutes. However, if small quantities of CO are present or high levels are short-lived, the alarm will accumulate the information and determine when an alarm level has been reached. The carbon monoxide detector is automatically activated whenever the house battery switch is “ON” and the DC Main breaker on the cabin AC/DC panel is “ON”. The power light on the carbon monoxide detector should be lit to indicate that the carbon monoxide detector is activated. **Always make sure the house battery switch and the DC Main breaker are both “ON” and the power light on the carbon monoxide detector is lit whenever the cabin is occupied.**

A by-product of combustion, carbon monoxide (CO) is invisible, tasteless, odorless, and is produced by all engines, heating and cooking appliances. The most common sources of CO on boats are the engines, auxiliary generators and propane or butane stoves. These produce large amounts of CO and should never be operated while sleeping.

A slight buildup of carbon monoxide over several hours causes headache, nausea and other symptoms that are similar to food poisoning, motion sickness or flu. High concentrations can be fatal within minutes. Many cases of carbon monoxide poisoning indicate that while victims are aware they are not well, they become so disoriented they are unable to save themselves by either exiting the area or calling for help. Also, young children, elderly persons, and pets may be the first affected.

Drug or alcohol use increases the effect of CO exposure. Individuals with cardiac or respiratory conditions are very susceptible to the dangers of carbon monoxide. CO poisoning is especially dangerous during sleep when victims are unaware of any side effects. The following are symptoms which may signal exposure to CO: (1) Headache (2) Tightness of chest or hyperventilation (3) Flushed face (4) Nausea (5) Drowsiness (6) Fatigue or Weakness (7) Inattention or confusion (8) Lack of normal coordination.



Carbon Monoxide Detector

Persons who have been exposed to carbon monoxide should be moved into fresh air immediately. Have the victim breathe deeply and seek immediate medical attention. To learn more about CO poisoning, contact your local health authorities.

Low levels of carbon monoxide over an extended period of time can be just as lethal as high doses over a short period. Therefore, low levels of carbon monoxide can cause the alarm to sound before the occupants of the boat notice any symptoms of carbon monoxide poisoning. CO detectors are very reliable and rarely sound false alarms. If the alarm sounds, always assume the hazard is real and move persons who have been exposed to carbon monoxide into fresh air immediately. Never disable the CO detector because you think the alarm may be false. Always contact the detector manufacturer or your local fire department for assistance in finding and correcting the situation.

Remember, carbon monoxide detectors do not guarantee that CO poisoning will not occur. Do not use the CO detector as a replacement for ordinary precautions or periodic inspections of equipment. Never rely on alarm systems to save your life, common sense is still prudent and necessary.

Please read the owner's manual supplied by the CO detector manufacturer and included with this manual, for operation instructions and additional information regarding the hazards of carbon monoxide gas. Refer to the Ventilation chapter for information on ventilating your boat properly while underway and other precautions while at anchor or in a slip. This is especially essential if your boat is equipped with the optional generator.

Many manufacturers of carbon monoxide detectors offer a testing and recertification program. We recommend that you contact the manufacturer of your carbon monoxide detector and have it tested and recertified periodically.



ACTUATION OF THE CARBON MONOXIDE DETECTOR INDICATES THE PRESENCE OF CARBON MONOXIDE (CO) WHICH CAN BE FATAL. EVACUATE THE CABIN IMMEDIATELY. DO A HEAD COUNT TO CHECK THAT ALL PERSONS ARE ACCOUNTED FOR. DO NOT REENTER THE CABIN UNTIL IT HAS BEEN AIRED OUT AND THE PROBLEM FOUND AND CORRECTED.

11.7 First Aid

It is the operator's responsibility to be familiar with the proper first-aid procedures and be able to care for minor injuries or illnesses of your passengers. In an emergency, you could be far from professional medical assistance. We strongly recommend that you be prepared by receiving training in basic first aid and CPR. This can be done through classes given by the Red Cross or your local hospital.



Your boat also should be equipped with at least a simple marine first-aid kit and a first-aid manual. The marine first-aid kit should be designed for the marine environment and be well supplied. It should be accessible and each person on board should be aware of its location. As supplies are used, replace them promptly. Some common drugs and antiseptics may lose their strength or become unstable as they age. Ask a medical professional about the supplies you should carry and the safe shelf life of prescription drugs or other medical supplies that may be in your first-aid kit. Replace questionably old supplies whether they have been used or not.

In many emergency situations, the Coast Guard can provide assistance in obtaining medical advice for treatment of serious injuries or illness. If you are within VHF range of a Coast Guard Station, make the initial contact on channel 16 and follow their instructions.

11.8 Additional Safety Equipment

Besides meeting the legal requirements, prudent boaters carry additional safety equipment. This is particularly important if you operate your boat offshore. You should consider the following items, depending on how you use your boat.

Satellite EPIRBs

EPIRBs (Emergency Position Indicating Radio Beacon) operate as part of a worldwide distress system. When activated, EPIRBs will send distress code homing beacons that allow Coast Guard aircraft to identify and find them quickly. The satellites that receive and relay EPIRB signals are operated by the National Oceanic and Atmospheric Administration (NOAA) in the United States. The EPIRB should be mounted and registered according to the instructions provided with the beacon, so that the beacon's unique distress code can be used to quickly identify the boat and owner.

Marine Radio

A marine radio is the most effective method of receiving information and requesting assistance. VHF marine radios are used near shore and single sideband radios are used for long range communication.

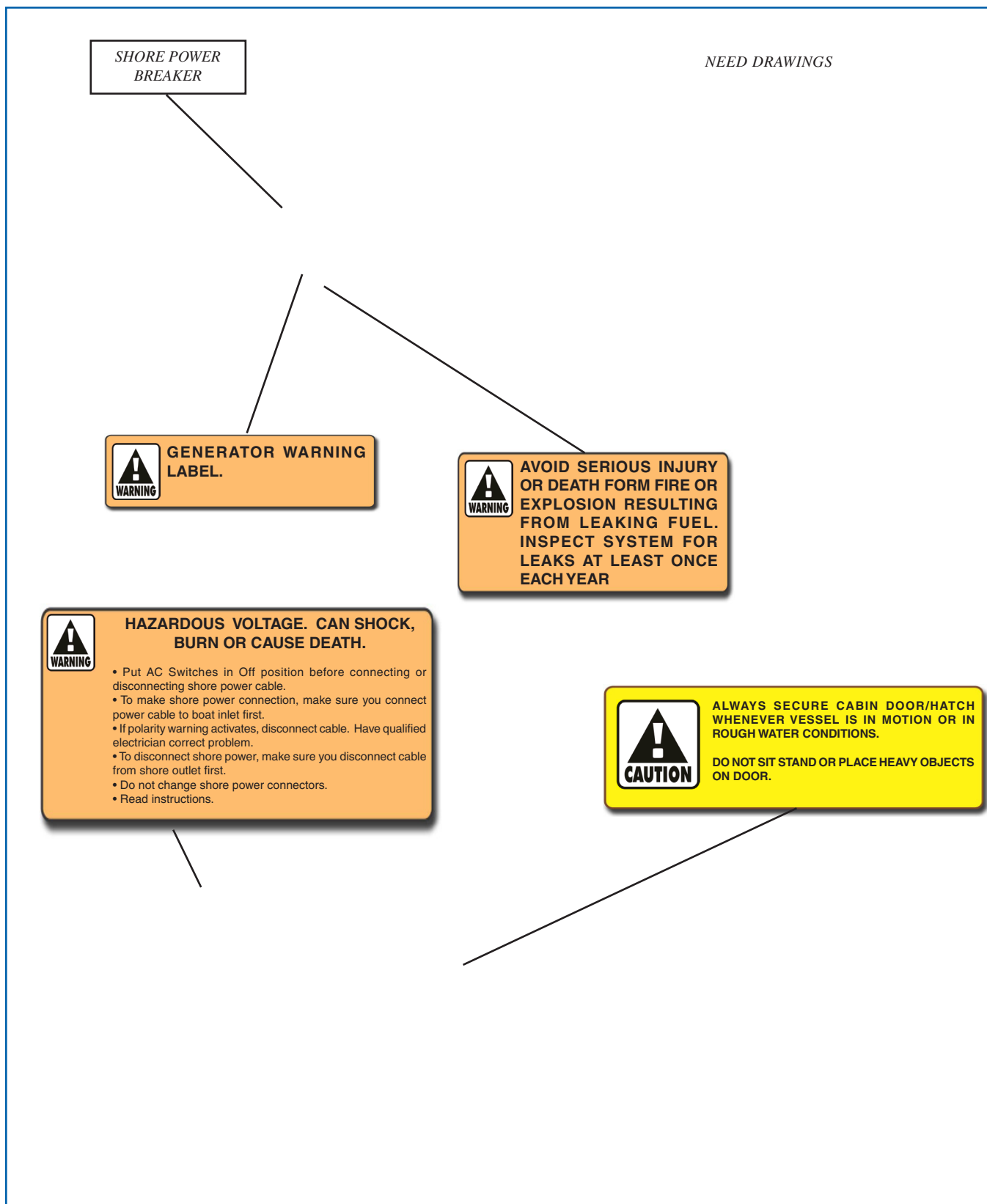
There are specific frequencies to use in an emergency. The VHF emergency channel is 16 in the United States. You should read the owners manual for your radio and know how to use it in an emergency or for normal operation. If you hear a distress call you should assist or monitor the situation until help is provided.

Additional Equipment to Consider:

VHF Radio	Life Raft
Spare Anchor	Fenders
Heaving Line	Mirror
First Aid Kit	Tool Kit
Flashlight & Batteries	Anchor
Searchlight	Boat Hook
Sunburn Lotion	Mooring Lines
Ring Buoy	Binoculars
Whistle or Horn	Extra Clothing
Portable Radio	Chart and Compass
Marine Hardware	Food & Water
Spare Keys	Sunglasses
Spare Parts	Spare Propeller

11.9 Caution and Warning Labels

Warning Label Locations:



Chapter 12: OPERATION

12.1 General

Before you start the engines on your Albemarle, you should have become familiar with the various component systems and their operation, and have performed a “Precruise System Check.” A thorough understanding of the component systems and their operation is essential to the proper operation of the boat. This manual and the associated manufacturers’ information is provided to enhance your knowledge of your boat. Please read them carefully.

Your boat must have the necessary safety equipment on board and be in compliance with the U.S. Coast Guard, local and state safety regulations. There should be one Personal Floatation Device (PFD) for each person. Nonswimmers and small children should wear PFDs at all times. You should know and understand the “Rules of the Road” and have had an experienced operator brief you on the general operation of your new boat. At least one other person should be instructed on the proper operation of the boat in case the operator is suddenly incapacitated.

The operator is responsible for his safety and the safety of his passengers. When boarding or loading the boat, always step onto the boat, never jump. All passengers should be properly seated whenever the boat is operated above idle speed. Your passengers should not be allowed to sit on the seat backs, gunnels, bows, transoms or on fishing seats whenever the boat is underway. The passengers also should be seated to properly balance the load and must not obstruct the operator’s view, particularly to the front.

Overloading and improper distribution of weight can cause the boat to become unstable and are significant causes of accidents. Know the weight capacity and horsepower rating of your boat. Do not overload or overpower your boat.

You should be aware of your limitations and the limitations of your boat in different situations or sea conditions. No boat is indestructible, no matter how well it is constructed. Any boat can be severely damaged if it is operated in a manner that exceeds its design limitations. If the ride is hard on you and your passengers, it is hard on the boat as well. Always modify the boat speed in accordance with the sea conditions, boat traffic and weather conditions.

Remember, it is the operator’s responsibility to use good common sense and sound judgement in loading and operating the boat.

12.2 Rules of the Road

As in driving an automobile, there are a few rules you must know for safe boating operation. The following information describes the basic navigation rules and action to be taken by vessels in a crossing, meeting or overtaking situations while operating in inland waters. These are basic examples and not intended to teach all the rules of navigation. For further information consult the “Navigation Rules” or contact the Coast Guard, Coast Guard Auxiliary, Department of Natural Resources, or your local boat club. These organizations sponsor courses in boat handling, including rules of the road. We strongly recommend such courses. Books or videos on this subject also are available from your local library.

Note: Sailboats not under power, paddle boats, vessels unable to maneuver, vessels engaged in commercial fishing and other vessels without power have the right of way over motor powered boats. You must stay clear or pass to the stern of these vessels. Sailboats under power are considered motor boats.

Crossing Situations

When two motor boats are crossing, the boat on the right has the right of way. The boat with the right of way should maintain its course and speed. The other vessel should slow down and permit it to pass. The boats should sound the appropriate signals.

Meeting Head-On or Nearly-So Situations

When two motor boats are approaching each other head-on or nearly head-on, neither boat has the right of way. Both boats should reduce their speed and turn to the right so as to pass port side to port side, providing enough clearance for safe passage. The boats should sound the appropriate signals.

Overtaking Situations

When one motor boat is overtaking another motor boat, the boat that is being passed has the right of way. The overtaking boat must make the adjustments necessary to provide clearance for a safe passage of the other vessel. The boats should sound the appropriate signals.

The General Prudential Rule

In obeying the Rules of the Road, due regard must be given to all dangers of navigation and collision, and to any special circumstances, including the limitations of the vessels, which may justify a departure from the rules that is necessary to avoid immediate danger or a collision.

Night Operation

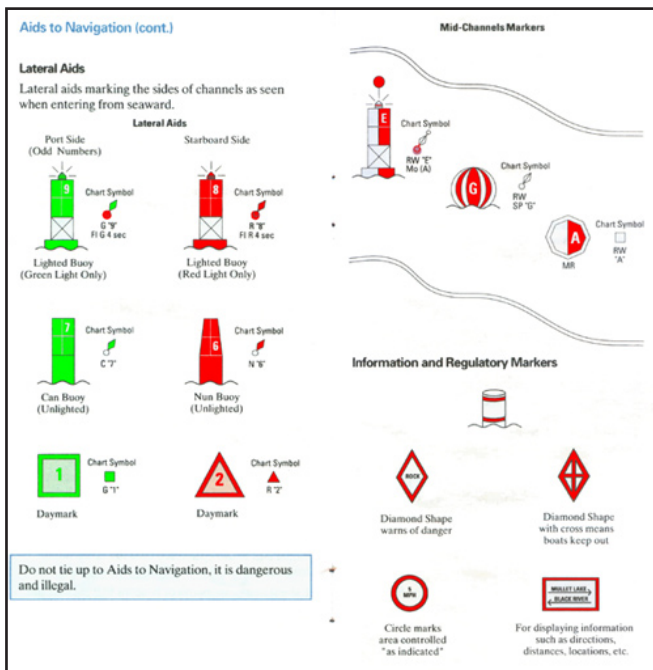
Recreational boats are required to display navigation lights between sunset and sunrise and other periods of reduced visibility such as fog, rain, haze, etc. When operating your boat at night you should:

- Make sure your navigation lights are on and working properly. Navigation lights warn others of your position and course and the position and course of other vessels.
- All navigation rules apply. If the bow light of another vessel shows red, you should give way to that vessel, if it shows green, you have the right of way.
- Slow down and never operate at high speeds when operating at night, stay clear of all boats and use good common sense. Always be ready to slow down or steer clear of other vessels, even if you have the right-of-way.
- Avoid bright lights that can destroy night vision, making it difficult to see navigation lights and the lights of other boats. You and your passengers should keep a sharp lookout for hazards, other boats and navigational aids.

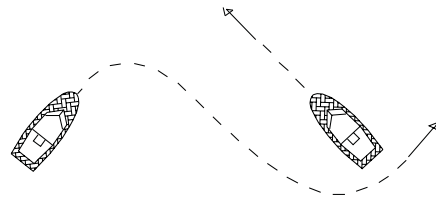
Navigation Aids

Aids to navigation are placed along coasts and navigable waters as guides to mark safe water and to assist mariners in determining their position in relation to land and hidden dangers. Each aid to navigation is used to provide specific information. You should be familiar with these and any other markers used in your boating area.

Note: Storms and wave action can cause buoys to move. You should not rely on buoys alone to determine your position.



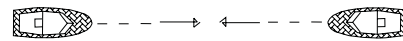
Crossing Situations



Give-way Vessel. . .give way
1 short blast.

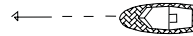
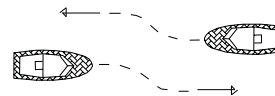
Stand-on Vessel
...hold course and speed
1 short blast.

Meeting Head-On or Nearly So Situations



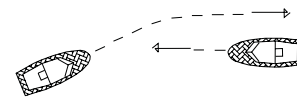
One short blast(1 sec.)

One short blast(1 sec.)



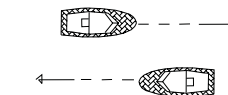
Vessels generally pass to portside.

However vessels may pass starboard to starboard.

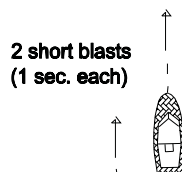


2 short blasts(1 sec. each)

2 short blasts(1 sec. each)

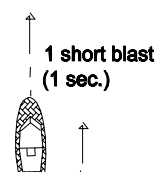


Overtaking Situations

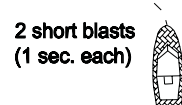


2 short blasts
(1 sec. each)

**Stand-on Vessel
Overtaken**

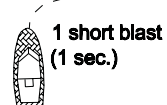


1 short blast
(1 sec.)



2 short blasts
(1 sec. each)

**Give-way Vessel
Overtaken
...Keep clear**



1 short blast
(1 sec.)

12.3 Pre-Cruise Check

Before Starting the Engines:

- Check the weather forecast and sea conditions before leaving the dock. Decide if the planned cruise can be made safely.
- Be sure all required documents are on board.
- Be sure all necessary safety equipment is on board and operative. This should include items like the running lights, spotlight, life saving devices, etc. Please refer to Safety Equipment chapter for additional information on safety equipment.
- Make sure you have signal kits and flare guns aboard, and they are current and in good operating condition.
- Be sure you have sufficient water and other provisions for the planned cruise.
- Leave a written message listing details of your planned cruise with a close friend ashore (Float Plan). The float plan should include a description of your boat, where you intend to cruise, and a schedule of when you expect to arrive in the cruising area, and when you expect to return. Keep the person informed of any changes in your plan to prevent false alarms. This information will tell authorities where to look and the type of boat to look for in the event you fail to arrive.
- Check the amount of fuel on board. Observe the “rule of thirds”: one third of the fuel for the trip out, one third to return and one third in reserve. An additional 15% may be consumed in rough seas.
- Check the water separating fuel filters for water. The engine fuel filters also should be checked for leaks or corrosion.
- Turn the battery switches on.
- Check the bilge water level. Look for other signs of potential problems. Monitor for the scent of fuel fumes.
- Test the automatic and manual bilge pump switches and high water alarm switches to make sure the systems are working properly. This is particularly important before running offshore.
- Turn on the bilge blowers and check the blower output. The blowers should be activated when operating below cruising speed and whenever the generator is operating.
- Have a tool kit aboard. The kit should include the following basic tools:

Spark plug wrench	Hammer
Spark plug gap gauge	Electrician’s tape
Screwdrivers	Offset screwdrivers
Lubricating oil	Pliers
Jackknife	Adjustable wrench_____
Basic 3/8” ratchet set	Vise grip pliers
Hex key set	Needle nose pliers
Wire crimping tool	Wire connector Set
End wrench set	Medium slip-joint pliers
Diagonal cutting pliers	DC electrical test light
- Have the following spare parts on board:

Extra light bulbs	Spark plugs
Fuses and circuit breakers	Main 12-volt fuses
Assorted stainless screws	Assorted stainless bolts
Flashlight and batteries	Drain plugs
Engine oil and transmission oil	Propellers
Fuel filters	Propeller nuts
Fuel hose and clamps	Wire ties
Engine cooling pump impeller Kit	Hydraulic steering oil
Assorted hose clamps	Rags
Steering fluid	Pump & alternator belts
- Make sure all fire extinguishers are in position and in good operating condition.



THERE MUST BE AT LEAST ONE PERSONAL FLOTATION DEVICE ON BOARD FOR EVERY PERSON ON BOARD AND ONE THROW-OUT FLOTATION DEVICE. CHECK THE U.S. COAST GUARD STANDARDS FOR THE CORRECT TYPE OF DEVICE FOR YOUR BOAT.

12.4 Operating Your Boat

After Starting the Engines:

- Check the engine gauges. Make sure they are reading normally.
- Visibly check the engines to be sure there are no apparent water, fuel or oil leaks.
- Check the operation of the engine cooling systems by inspecting the transom exhaust ports for water flow.
- Check the steering and engine controls for proper operation.
- Make sure all lines, cables, anchors, etc. for securing a boat are on board and in good condition. All lines should be coiled, secured and off the decks when underway.

- Have a safe cruise and enjoy yourself.

Remember:

When you operate a boat, you accept the responsibility for the boat, for the safety of passengers and for others out enjoying the water.

- Alcohol and any drugs can severely reduce your reaction time and affect your better judgement.
- Alcohol severely reduces the ability to react to several different signals at once.
- Alcohol makes it difficult to correctly judge speed and distance, or track moving objects.
- Alcohol reduces night vision, and the ability to distinguish red from green.



YOU SHOULD NEVER OPERATE YOUR BOAT WHILE UNDER THE INFLUENCE OF ALCOHOL OR DRUGS.

- Make sure one other person on the boat is instructed in the operation of the boat.
- Make sure the boat is operated in compliance with all state and local laws governing the use of a boat.



DO NOT OPERATE THE BOAT UNLESS IT IS COMPLETELY ASSEMBLED. KEEP ALL FASTENERS TIGHT. KEEP ADJUSTMENTS ACCORDING TO SPECIFICATIONS.

- Always operate the blowers when operating the boat below cruising speed or when the generator is running to help cool the engine compartment.
- Avoid sea conditions that are beyond the skill and experience of you and your crew. Learn to understand weather patterns and indications for change. You should monitor NOAA weather broadcasts before leaving port and periodically while boating. If the weather deteriorates or a storm approaches, seek shelter in a safe harbor.
- Use caution during periods of reduced visibility due to weather or operation conditions. Reduce speed and designate a passenger to be a lookout for other boats, obstacles and navigational markers until you reach port or conditions improve.

- Your Albemarle is a heavy boat that will produce a large wake at certain speeds. You are responsible for damage and injury caused by your boat's wake. Always observe no wake zones and be aware that your wake can endanger small vessels and their passengers. Always be courteous and slow down to reduce your wake when passing smaller boats.
- Before operating the boat for the first time, read the engine break-in procedures. The break-in procedures are found in the owner's manual for the engines. The manual is in the literature packet.
- As different types of engines are used to power the boat, have the dealer describe the operating procedures for your boat. For more instructions on "How To Operate The Boat," make sure you read the instructions given to you in the owner's manual for the engines you have selected.

Note: For more instructions on safety, equipment and boat handling, enroll in one of the several free boating courses offered. For information on the courses offered in your area, call the "Boating Course Hotline," 1-800-368-5647.

Note: If the running gear hits an underwater object, stop the engines. Inspect the propulsion system for damage. If the system is damaged, contact your dealer for a complete inspection and repair of the unit.

To stop the boat, follow this procedure:

- Allow the engines to drop to the idle speed.
- Make sure the shifting levers are in the neutral position.

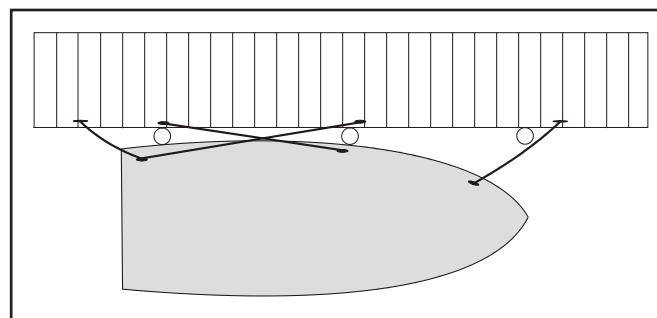
Note: If the engines have been run at high speed for a long period of time, allow the engines to cool down by running the engines in the idle position for 3 to 5 minutes.

- Turn the ignition keys to the "OFF" position.
- Raise the trim tabs to the full up position.

After Operation:

- If operating in saltwater, wash the boat and all equipment with soap and water.
- Check the bilge area for debris and excess water.

- Fill the fuel tanks to near full to reduce condensation. Allow enough room in the tanks for the fuel to expand without being forced out through the vent.
- Turn off all electrical equipment except the automatic bilge pumps.
- If you are going to leave the boat for a long period of time, put the battery main switches in the “OFF” position and close all seacocks.
- Make sure the boat is securely moored.



Securing The Boat Along Side A Dock (Typical)



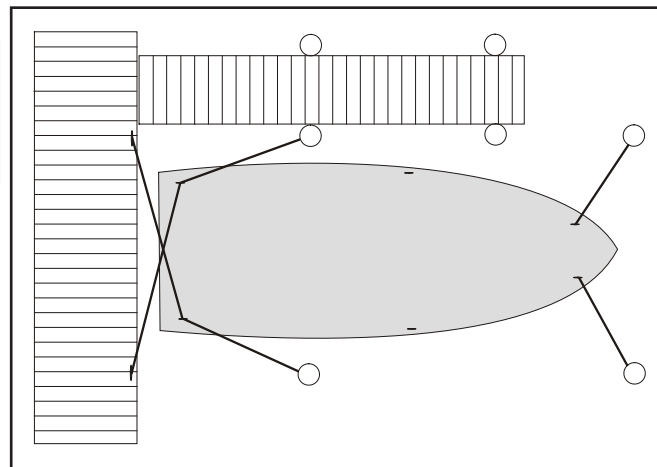
12.5 Docking, Anchoring and Mooring

Docking and Dock Lines

Maneuvering the boat near the dock and securing the boat require skill and techniques that are unique to the water and wind conditions and the layout of the dock. If possible, position a crew member at the bow and stern to man the lines and assist in docking operations. While maneuvering close to the dock consideration must be given to the wind and current. You should anticipate the effect these forces will have on the boat and use them to help put the boat where you want it. It is important to practice in open water using an imaginary dock enough to develop a sense for the way your boat handles in a variety of docking scenarios. You must be able to foresee the possibilities and have solutions in mind before problems occur.

Approaching a dock or backing into a slip in high winds or strong currents requires a considerable amount of skill. If you are new to boat handling, you should take lessons from an experienced pilot to learn how to maneuver your boat in tight quarters in less than ideal conditions. You should also practice away from the dock during windy conditions.

Dock lines are generally twisted or braided nylon. Nylon is strong and stretches to absorb shock. It also has a long life and is soft and easy on the hands. The line's size will vary with the size of the boat. Typically a 30 to 40 foot boat will use 5/8-inch line and a 20 to 30 foot boat will use 1/2-inch line. The number of lines and their configuration will vary depending on the dock, the range of the tide, and many other factors. Usually a combination of bow, stern and spring lines is used to secure the boat.



Securing The Boat In A Slip (Typical)

Maneuvering to the Dock

Approach the dock slowly at a 30 to 40 degree angle. Whenever possible, approach against the wind or current. Turn the rudders straight & shift to neutral when you feel you have enough momentum to reach the dock. Use reverse on the outboard engine to slow the boat and pull the stern toward the dock as the boat approaches. Use both engines to stop the boat if it is still moving forward against the pilings. If you executed your approach properly, the boat will lightly touch the pilings at the same time the forward momentum is stopped. Have the dock lines ready and secure the boat as soon as it stops. Use fenders to protect the boat while it is docked. Keep the engines running until the lines are secured.

Backing into a Slip

Approach the slip with the stern against the wind or current and the rudders straight ahead. Use the engines to maneuver the boat into alignment with the slip. Reverse the engines and slowly back into the slip. Shift from reverse to neutral frequently to prevent the boat from gaining too much speed. Move the stern right and left by shifting the engines in and out of gear. When nearly in the slip all the way, shift to forward to stop. Keep the engines running until the lines are secured.

Securing Dock Lines

Securing a boat that is tied along side the dock typically requires a bow and stern line and two spring lines. The bow and stern lines are usually secured to the dock at a 40° angle aft of the stern cleat and forward of the bow cleat. The after bow spring line is secured to the dock at a 40° angle aft of the after bow spring cleat. The forward quarter spring is secured to the dock at a 40° angle forward of the stern cleat. The spring lines keep the boat square to the dock and reduce fore and aft movement while allowing the boat to move up and down with the tide.

Securing a boat that in a slip is somewhat different. It typically requires two bow lines secured to pilings on each side of the bow, two stern lines secured to the dock and two spring lines that prevent the boat from hitting the dock. The bow lines are typically secured with enough slack to allow the boat to ride the tide. The stern lines are crossed. One line runs from the port aft boat cleat to the starboard dock cleat and the other line runs from the starboard aft boat cleat to the port cleat on the dock. The stern lines center the boat, control the forward motion, and allow the boat to ride the tide. Two forward quarter spring lines typically are secured to the stern cleats and to mid ship pilings or cleats. The spring lines keep the boat from backing into the dock while allowing it to ride the tide.

Leaving the Dock

Always start the engines and let them warm up for several minutes before releasing the lines. Boats steer from the stern and it is important that you achieve enough clearance at the stern to maneuver the boat as quickly as possible. Push the stern off and maneuver such that you get stern clearance quickly. Proceed slowly until well clear of the dock and other boats.

Mooring

Approach the mooring heading into the wind or current. Shift to neutral when you have just enough headway to reach the buoy. Position a crew member on the bow to retrieve the mooring with a boat hook and secure the line. Keep the engines running until the line is secured.

Leaving a Mooring

Start the engines and let them warm up for several minutes before releasing the mooring line. The boat will already be headed into the wind, so move it forward enough to loosen the line and untie it. Back the boat away from the mooring until you can see the buoy. Move the boat slowly away from the mooring.

Anchoring

Make sure the bitter end of the anchor line is attached to boat before dropping the anchor. Bring the bow into the wind or current and put the engine in neutral. When the vessel comes to a stop, lower the anchor over the bow. Pay out anchor line so that it is at least 5 to 7 times the depth of the water and secure the line to a cleat. Use caution to avoid getting your feet or hands tangled in the line. Additional scope of 10 times the depth may be required for storm conditions. Check landmarks on shore

to make sure the anchor is not dragging. If it is dragging, you will have to start all over. It is prudent to use two anchors if you are anchoring overnight or in rough weather.

Releasing the Anchor

Release the anchor by driving the boat slowly to the point where the anchor line becomes vertical. It should release when you pass that point. If the anchor doesn't release right away, stop the boat directly above the anchor and tie the line to the cleat as tight as possible. The up and down movement of the boat will usually loosen the anchor within a minute. Make sure you secure the anchor and properly stow the line before operating the boat.



NEVER ANCHOR THE BOAT BY THE STERN. THE STERN OF THE BOAT IS VULNERABLE TO SWAMPING FROM WAVE ACTION AND WIND AND CURRENT WILL PUT MORE STRESS ON THE ANCHOR WHEN IT IS ATTACHED TO THE STERN. ONLY ANCHOR THE BOAT BY THE BOW

12.6 Controls, Steering, or Propulsion System Failure:

If the propulsion, control or steering system fails while you are operating the boat, bring both throttles to idle and shift to neutral. Decide whether you need to put out the anchor to prevent the boat from drifting or to hold the bow into the seas. Investigate and correct the problem if you can. Turn the engines off before going into the engine compartment to make repairs. If you are unable to correct the problem, call for help.

If only one engine has failed, you can usually run home on the other engine. Be careful not to apply too much power to the engine that is running. When only one engine is used to power a twin engine boat, that engine is over propped and can be overloaded if too much throttle is applied. You should contact your dealer or the engine manufacturer for the maximum power settings when running on one engine.

12.7 Collision

If your boat is involved in a collision with another boat, dock, piling or a sandbar, your first priority is to check your passengers for injuries and administer first aid if necessary. Once your passengers situations are stabilized, thoroughly inspect the boat for damage. Check below decks for leaks and the control systems for proper operation. Plug all leaks or make the necessary repairs to the control systems before proceeding slowly and carefully to port. Request assistance if necessary. Haul the boat and make a thorough inspection of the hull and running gear for damage.

12.8 Grounding, Towing and Rendering Assistance

The law requires the owner or operator of a vessel to render assistance to any individual or vessel in distress, as long as his vessel is not endangered in the process.

If the boat should become disabled, or if another craft that is disabled requires assistance, great care must be taken. The stress applied to a boat during towing may become excessive. Excessive stress can damage the structure of the boat and create a safety hazard for those aboard.

Freeing a grounded vessel, or towing a boat that is disabled, requires specialized equipment and knowledge. Line failure and structural damage caused by improper towing have resulted in fatal injuries. Because of this, we strongly suggest that these activities be left to those who have the equipment and knowledge, e.g., the U.S. Coast Guard or a commercial towing company, to safely accomplish the towing task.



THE MOORING CLEATS ON ALBEMARLE BOATS ARE NOT DESIGNED OR INTENDED TO BE USED FOR TOWING PURPOSES. THESE CLEATS ARE SPECIFICALLY DESIGNED AS MOORING CLEATS FOR SECURING THE BOAT TO A DOCK, PIER, ETC. DO NOT USE THESE FITTINGS FOR TOWING OR ATTEMPTING TO FREE A GROUNDED VESSEL.



WHEN TOWING OPERATIONS ARE UNDERWAY, HAVE EVERYONE ABOARD BOTH VESSELS STAY CLEAR OF THE TOW LINE AND SURROUNDING AREA. A TOW LINE THAT SHOULD BREAK WHILE UNDER STRESS CAN BE VERY DANGEROUS, AND COULD CAUSE SERIOUS INJURY OR DEATH.



RUNNING AGROUND CAN CAUSE SERIOUS INJURY TO PASSENGERS AND DAMAGE TO A BOAT AND ITS UNDERWATER GEAR. IF YOUR BOAT SHOULD BECOME GROUNDED, DISTRIBUTE PERSONAL FLOTATION DEVICES AND INSPECT THE BOAT FOR POSSIBLE DAMAGE. THOROUGHLY INSPECT THE BILGE AREA FOR SIGNS OF LEAKAGE. AN EXPERIENCED SERVICE FACILITY SHOULD CHECK YOUR UNDERWATER GEAR AT THE FIRST OPPORTUNITY. DO NOT CONTINUE TO USE YOUR BOAT IF THE CONDITION OF THE UNDERWATER EQUIPMENT IS QUESTIONABLE.

12.9 Flooding, or Capsizing

Boats can become unstable if they become flooded or completely swamped. You must always be aware of the position of the boat to the seas and the amount of water in the bilge. Water entering the boat through the transom door or over the stern gunnels can usually be corrected by closing the door and turning the boat into the waves. If the bilge is flooding because of a hole in the hull or a defective hose, you may be able to plug it with rags, close the thru-hull valve or assist the pumps by bailing with buckets. Put a mayday call in to the Coast Guard or nearby boats and distribute life jackets as soon as you discover your boat is in trouble.

If the boat becomes swamped and capsizes, you and your passengers should stay with the boat as long as you can. It is much easier for the Coast Guard, aircraft, or other boats to spot, than people in the water. If your boat is equipped with an EPIRB, make sure it is activated. When activated, EPIRBs will send distress code homing beacons that allow Coast Guard aircraft to identify your boat and find you quickly.

12.10 Fishing

Fishing can be very exciting and distracting for the operator when the action gets intense. You must always be conscious of the fact that your primary responsibility is the safe operation of your boat and the safety of your passengers and other boats in the area.

You must always make sure the helm is properly manned and is never left unattended while trolling. If your boat is equipped with a tower, caution and good common sense must be exercised whenever someone is in the tower. Remember, weight in the tower raises the boat's center of gravity and the boat's motion is greatly exaggerated for the person in a tower.

If you are fishing in an area that is crowded with other fishing boats, it may be difficult to follow the rules of the road. This situation can become especially difficult when most boats are trolling. Being courteous and exercising good common sense is essential. Avoid trying to assert your right of way and concentrate on staying clear and preventing tangled or cut lines and other unpleasant encounters with other boats. Also keep in mind that fishing line wrapped around a propeller shaft can damage the strut bearing.

12.11 Man Overboard

If someone falls overboard, you must be prepared to react quickly, particularly when you are offshore. The following procedures will help you in recovering a person that has fallen overboard.

- Immediately stop the boat and sound a man overboard alarm and have all passengers point to the person in the water.
- Circle around quickly and throw a cushion or life jacket to the person, if possible, and another to use as a marker.
- Keep the person on the driver side of the boat so you can keep him in sight at all times.
- Make sure to approach the person from the downwind side and maneuver the boat so the propellers are well clear of the person in the water.
- Turn off the engines when the person is alongside and use a ring buoy with a line attached, a paddle or boat hook to assist him to the boat. Make sure you don't hit him with the ring buoy or the boat.
- Pull the person to the boat and assist him on board.
- Check the person for injuries and administer first aid if necessary. If the injuries are serious, call for help. Refer to the Safety chapter for more information on first aid and requesting emergency medical assistance.



MOVING PROPELLERS ARE DANGEROUS. THEY CAN CAUSE DEATH, LOSS OF LIMBS, OR OTHER SEVERE INJURY. DO NOT USE THE SWIM PLATFORM OR SWIM LADDER WHILE THE ENGINES ARE RUNNING. STOP THE ENGINES IF DIVERS OR SWIMMERS ARE ATTEMPTING TO BOARD. ALWAYS REMOVE AND PROPERLY STORE THE LADDER BEFORE STARTING THE ENGINES.

12.12 Tower Operation (Optional)

Your boat could be equipped with an optional fabricated aluminum tower. Towers are normally equipped with full engine controls, trim tab controls, compass, engine alarms, restart buttons and tachometers. This allows for complete operation of the boat from the tower.

Operation of the Tower Controls

The engines should be started at the lower helm. Monitor the gauges to make sure all systems are normal and the engines have been allowed to warm up slightly before proceeding to the tower helm. The ignition or restart switches on the tower are only used to restart an engine in the event it should stall. The shift controls must be in neutral for the start switches to be functional.

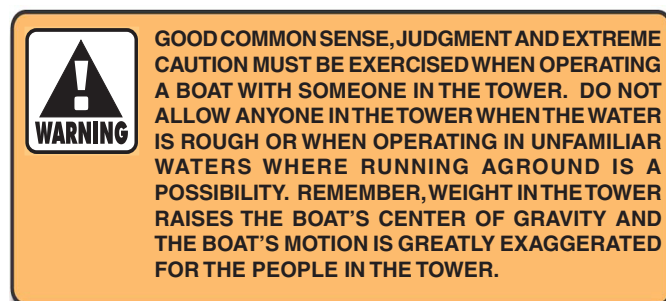
Electronic engine controls are equipped with a station transfer button that allows the operator to transfer control from one station to another with the push of a button. Always make sure that you activate the controls as soon as you reach the helm in the tower.

Refer to the Control Systems chapter and the electronic engine control owner's manual for more information on the control system operation and selecting the controls on boats with dual stations.

The following is a list of safety precautions for tower operation:

- Do not operate the boat from the tower in rough sea conditions. The boat's motions are exaggerated in the tower and this motion may become excessive in rough seas.
- Be careful when using the trim tabs from the tower. The reaction of the trim tabs will be exaggerated in the tower. Use small tab corrections and wait ten (10) seconds for the tabs to react. Keep making small corrections until the hull is at the desired attitude.
- Do not overload the tower. Most towers are designed to hold the weight of only two or three average-sized people. Weight in the tower raises the boat's center of gravity. Too much weight in the tower could make the boat unstable.
- Do not operate the boat in tight quarters, such as marinas, from the tower. The operator is isolated from the boat while in the tower and will not be able to assist in docking procedures.
- Always pay close attention to your grip and footing on the tower ladders. Your ability to achieve a good grip and proper footing is reduced in wet or rough weather. Therefore, the tower should be avoided in these conditions.
- Only operate the boat from the tower in familiar waters or where running aground is not a possibility. Running aground while operating the boat from the tower could result in severe injury.
- Always be alert for waves and boat wakes when operating the boat from the tower. Remember that the boat's motions are exaggerated in the tower.
- Good common sense and judgment must be exercised at all times when operating a boat from the tower.
- If an engine alarm sounds, immediately put the boat in NEUTRAL and shut OFF the engine(s), if safe to do so, until the problem is found and corrected.

- Always put the boat in NEUTRAL before moving to and from the tower helm and cockpit.



12.13 Trash Disposal

The discharge of plastic trash or trash mixed with plastic is illegal anywhere in the marine environment. U.S. Coast Guard regulations also restrict the dumping of other forms of garbage. Regional, State, and local restrictions on garbage discharges also may apply.

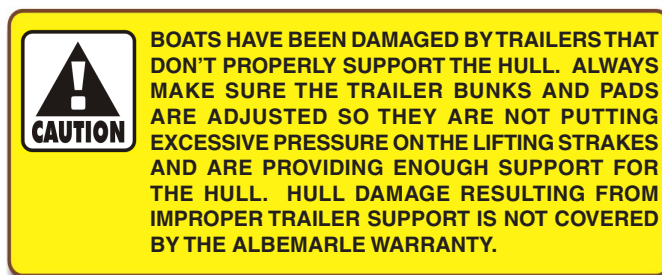
Responsible boaters store refuse in bags and dispose of it properly on shore. You should make sure your passengers are aware of the local waste laws and the trash management procedure on your boat. Refer to the placard mounted on your boat for more specific information regarding solid waste disposal.

Federal law requires that vessels of 26 feet or longer must display in a prominent location, a durable placard at least 4 by 9 inches notifying the crew and passengers of the discharge restrictions (Marpol Treaty). A label for this purpose has been shipped with the boat. It is the boat owner's responsibility to make sure this placard remains mounted and legible in accordance with the law.

12.14 Transporting Your Boat

Your Albemarle is a large boat and should only be trailered by professionals that have the knowledge and equipment to move large boats without causing damage.

Please contact your dealer or the Albemarle Customer Service Department if you are planning to transport your boat and have any questions in regard to the proper equipment and support for the hull.



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Chapter 13:

ROUTINE MAINTENANCE

13.1 Exterior Hull and Deck

Hull Cleaning-Below The Water Line

When the boat is removed from the water, clean the outer bottom surface immediately. Algae, grass, dirt and other marine growth is easier to remove while the hull is still wet. Use a pressure cleaner or a hard bristle brush to clean the surface.

Bottom Painting

If the boat is to be left in saltwater for extended periods, the hull must be protected from marine growth by antifouling paint. Because of variations in water temperature, marine growth, and pollution in different regions, your dealer and/or a qualified boat yard in your area should be consulted when deciding what bottom paint system to apply to your hull. This is extremely important as pollution and marine growth can damage fiberglass hulls.



SANDING OR SANDBLASTING THE HULL BOTTOM WILL DAMAGE THE FIBERGLASS. USE ONLY STANDARD ANTIFOULING PAINTS AND FIBERGLASS WAX REMOVERS AND PRIMERS RECOMMENDED BY THE ANTIFOULING PAINT MANUFACTURER WHEN PREPARING THE HULL FOR BOTTOM PAINT.

Most bottom paints require some maintenance. Proper maintenance is especially important when the boat is in saltwater and not used for extended periods or after dry storage. If the hull bottom has been painted with antifouling paint, contact your dealer for the recommended maintenance procedures.

Sacrificial Anodes

Sacrificial zinc anodes are installed on the inboard engines' freshwater cooling system and on the transom. The transom zinc is connected to the bonding system and protects the rudder assemblies, shaft logs and other underwater hardware that is bonded. Additional zinc anodes are installed on the propeller shafts and should be installed on the trim tabs if the boat is to be left in the water.

The anodes are less noble than copper based alloys, aluminum and stainless steel. They will deteriorate first, protecting the more noble engine and underwater hardware against galvanic corrosion. Anodes should be checked monthly and changed when they are 75% of their original size. When replacing the anodes, make sure the contact surfaces are clean, shiny metal and free of paint and corrosion. Never paint over the anode. The bonding system should be inspected by a qualified marine

electrician once a year to make sure all connections are sound and there is continuity throughout the system.

Boats stored in salt water will normally need to have the anodes replaced every 6 months to one year. Anodes requiring replacement more frequently may indicate a stray current problem within the boat or at the slip or marina. Anodes that do not need to be replaced after one year may not be providing the proper protection. Loose or low quality anodes could be the problem. There could also be a problem in the bonding system. Contact your dealer for the proper size and type of zinc anodes to be used and the specific installation procedure.

Fiberglass Gelcoat Surfaces

Normal maintenance requires only washing with mild soap and water. A stiff brush can be used on the nonskid areas. Kerosene or commercially prepared products will remove oil and tar which could be a problem on trailered boats. Harsh abrasive and chemical cleaners are not recommended because they can damage or dull the gelcoat, reducing its life and making it more susceptible to stains. When the boat is used in saltwater, it should be washed thoroughly with soap and water after each use.

At least once a season, wash and wax all exposed fiberglass surfaces. Use a high quality automotive or boat wax. Follow the procedure recommended by the wax manufacturer. The washing and waxing of your boat will have the same beneficial effects as they have on an automobile finish. The wax will fill minute scratches and pores thus helping to prevent soiling and will extend the life of the gelcoat.

After the boat is exposed to the direct sunlight for a period of time, the color in the gelcoat tends to fade, dull or chalk. A heavier buffing is required to bring the gelcoat back to its original luster. For power cleaning use a light cleaner. To clean the boat by hand, use a heavier automotive cleaner. Before cleaning the surfaces, read the instructions given with the cleaner. After cleaning the surfaces, apply wax and polish all fiberglass surfaces except the nonskid areas.

If the fiberglass should become damaged and need repair, contact your dealer for an authorized repair person to make the repairs.



DO NOT WAX NONSKID AREAS AS THIS COULD MAKE THEM SLIPPERY AND CONSEQUENTLY INCREASE THE POSSIBILITY OF INJURY.

Stainless Steel Hardware

When using the boat in saltwater, the hardware should be washed with soap and water after each use. When a boat is used in a corrosive environment such as saltwater, water with a high sulfur content, or polluted water, the stainless steel will periodically develop surface rust stains. This is perfectly normal under these conditions. The stainless can normally be cleaned and protected by using a high quality boat or automotive wax or a commercial metal cleaner and protectant.



UNDER NO CIRCUMSTANCES SHOULD ANY ABRASIVE MATERIALS SUCH AS SANDPAPER, BRONZE WOOL, OR STEEL WOOL BE USED ON STAINLESS STEEL. DAMAGE TO THE HARDWARE WILL RESULT.

Anodized Aluminum Surfaces

Anodized aluminum should be washed periodically with soap and water to keep it clean. If the boat is used in saltwater or polluted water, the aluminum should be washed with soap and water after each use. Saltwater allowed to remain on anodized aluminum will penetrate the anodized coating and attack the aluminum.

Hardtops with anodized aluminum frames, bimini tops and towers with canvas and/or fiberglass tops require special attention to the anodized aluminum just below the top. This area is subject to salt build up from salty condensation and sea spray. It is also frequently overlooked when the boat is washed and will not be rinsed by the rain. Consequently, the aluminum just below the top is more likely to become pitted than the exposed aluminum on the structure. Make sure the aluminum in this area is washed frequently with soap and water and rinsed thoroughly. Pay particular attention to places where the top material and lacing contact the frame. Once a month coat the entire frame with a metal protector made for anodized aluminum to protect against pitting and corrosion caused by the harsh effects of salt water.



ONE DRAWBACK TO METAL PROTECTORS IS THAT THEY CAN MAKE THE METAL SLIPPERY. THEREFORE, METAL PROTECTORS SHOULD NOT BE USED ON TOWER LADDERS, STEERING WHEELS AND OTHER AREAS WHERE A GOOD GRIP AND SURE FOOTING IS IMPORTANT.

Stains can be removed anodized aluminum with a metal polish or fine polishing compound. To minimize corrosion, use a caulking compound or teflon based sealer to bed hardware and fasteners mounted to aluminum fabrications. If the anodized coating is badly scratched it can be touched up with paint. With proper care, anodized aluminum will provide many years of service.

Note: You should contact Albemarle Customer Service before making any modifications to aluminum fabrications. Unauthorized modifications can void the warranty.

Powder Coated Aluminum

Powder coated aluminum should be washed periodically with soap and water to keep it clean. If the boat is used in saltwater or polluted water, the aluminum should be washed with soap and water after each use. Saltwater allowed to remain on powder coated aluminum will penetrate the coating and attack the aluminum, usually around fasteners and hardware mounted to the aluminum.

Pay special attention to the area just below the top. This area is subject to salt build up from salty condensation and sea spray. It is also frequently overlooked when the boat is washed and will not be rinsed by the rain. Consequently, the powder coating near fasteners and hardware mounted just below the top is more likely to be attacked by the salt and become corroded than the exposed areas on the structure. Make sure the aluminum in this area is washed frequently with soap and water and rinsed thoroughly. Pay particular attention to places where the top material and lacing contact the frame.

Once a month check the entire frame for damaged powder coating and corrosion around fasteners and hardware. Nicked or badly scratched powder coating can be sanded and touched up with enamel paint. Corrosion around fasteners will have to be sanded, then touched up with paint. The fasteners will require fiber washers and sealing with caulk or a teflon based sealer to isolate the fastener from the aluminum and prevent damage to the paint or powder coating when the fastener is installed. Periodically applying automotive or boat wax to the powder coating will provide additional protection from the harsh effects of saltwater.

Always repair scratches, nicks and corroded areas in powder coating as soon as possible. Corrosion left unaddressed will lift the powder coating allowing moisture to travel between the powder coating and the aluminum causing the corrosion to spread below the coating and damage the aluminum.

If excessive chipping and peeling occurs, it could be an indication of an electrical fault in the boat or aluminum fabrication. You should contact a qualified marine electrician to inspect your boat immediately and correct the problem if you suspect

that your boat may have a fault in the aluminum frame. You should also contact Albemarle Customer Service.

Note: Boats that are towed behind larger vessels require special attention to the aluminum hardware. The salt spray, salty steam, and chemicals in exhaust gases are particularly corrosive and will eventually penetrate and damage the surface of anodized or powder coated aluminum. It is imperative that the boat and the aluminum are cleaned thoroughly at the completion of each trip or at the end of each day on long cruises to reduce accelerated deterioration of the anodizing or powder coating and premature corrosion to the aluminum.

Note: You should contact Albemarle Customer Service before making any modifications to aluminum fabrications. Unauthorized modifications can void the warranty.

Chrome Hardware

Use a good chrome cleaner and polish on all chrome hardware.

Acrylic Plastic Glass

Acrylic glass scratches easily. Never use a dry cloth or glass cleaning solutions on acrylic. Use a soft cloth and mild soap and water for routine cleaning. Solvents and products containing ammonia can permanently damage acrylic plastic glass.

Fine scratches can be removed with a fine automotive clear coat polishing compound. A coat of automotive or boat wax is beneficial to protect the surface.

Do not use the following on acrylic glass:

Abrasive cleaners	Acetone
Solvents	Alcohol
Glass cleaners	Cleaners containing ammonia

13.2 Upholstery, Canvas and Enclosures

Vinyl Upholstery

The vinyl upholstery used on the exterior seats and bolsters, and for the headliner in the cabin should be cleaned periodically with soap and water. Any stain, spill or soiling should be cleaned up promptly to prevent the possibility of permanent staining. When cleaning, always rub gently. Avoid using products containing ammonia, powdered abrasive cleaners, steel wool, strong solvents, acetone and lacquer solvents or other harsh chemicals as they can cause permanent damage or shorten the life of vinyl. Never use steam heat, heat guns or hair dryers on vinyl.

Stronger cleaners, detergents and solvents may be effective in stain removal, but can cause either immediate damage or slow deterioration. Lotions, sun tan oil, waxes and polishes, etc., contain oils and dyes that can cause stiffening and staining of vinyls.

The following are typical stains and cleaning tips for vinyl:

- Dry soil, dust and dirt - Remove with a soft cloth.
- Dried on dirt - Wash with a soft cloth dampened with water.
- Variations in surface gloss - Wipe with a water dampened soft cloth and allow to air dry.
- Stubborn dirt - Wash with a soft cloth dampened with Ivory Flakes® and water. Rinse with clean water.
- Stubborn spots and stains - Spray with either Fantastik Cleaner® or Tannery Car Care Cleaner® and rub with a soft cloth. Rinse with clean water.
- Liquid spills - Wipe immediately with a clean absorbent cloth. Rinse with clean water.
- Food grease and oily stains - Spray immediately using either Fantastik Cleaner® or Tannery Car Care Cleaner®, wiping with a soft cloth. Take care not to extend the area of contamination beyond its original boundary. Rinse with clean water.

Canvas and Side Curtains

Acrylic (Sunbrella) canvas should be cleaned periodically by using a mild soap and water. Scrub lightly and rinse thoroughly to remove the soap. Do not use detergents. The top or accessories should never be folded or stored wet.

After several years, the acrylic canvas may lose some of its ability to shed water. If this occurs, wash the fabric and treat it with a commercially available water proofing designed for this purpose.

Note: Some leakage at the seams is normal and unavoidable with acrylic enclosures.

Side curtains and clear connectors can be cleaned with mild soap and water. They should not be allowed to become badly soiled. Dirt, oil, mildew, and cleaning agents containing ammonia, will shorten the life of the vinyl that is used for clear curtains. After cleaning the curtains and allowing them to dry, apply a non-lemon furniture polish or an acrylic glass and clear plastic protector to extend the life of the curtains.

Vinyl curtains should be stored either rolled or flat, without folds or creases. Folding the curtains will make permanent creases that could cause the vinyl to crack.

Note: Do not use any polish containing lemon scents or lemon. The lemon juice will attack the vinyl and shorten its life.

Snap should be lubricated periodically with petroleum jelly or silicone grease. Zippers should be lubricated with silicone spray or paraffin or a product designed to lubricate zippers in marine canvas.

The bimini top, side curtains, clear connector, back drop and aft curtain must be removed when trailering. Canvas enclosures are not designed to withstand the extreme wind pressure encountered while trailering and will be damaged. Always remove and properly store the enclosure before trailering your boat.

Do not operate engines, fuel consuming heaters or burners with the canvas enclosures closed. The cockpit must be open for legal ventilation and to prevent the possible accumulation of carbon monoxide fumes, which could be lethal.



CARBON MONOXIDE IS A LETHAL, TOXIC GAS THAT IS COLORLESS AND ODORLESS. IT IS A DANGEROUS GAS THAT WILL CAUSE DEATH IN CERTAIN LEVELS.

13.3 Cabin Interior

The cabin interior can be cleaned just like you would clean a home interior. The wood floors and steps can be vacuumed and cleaned with a mixture of water and Murphy's Oil Soap. Wipe the wood dry with a clean towel. To preserve the cherry and teak woodwork, use furniture polish with wax. To maintain the carpeting, use a vacuum cleaner.

Because air and sunlight are very good cleansers, periodically put cushions, sleeping bags, etc. on deck, in the sun and fresh air, to dry and air out. If cushions or equipment get wet with saltwater, remove and use clean, fresh water to rinse off the salt crystals. Salt retains moisture and will cause damage. Dry thoroughly and reinstall.

Vinyl headliner material should be cleaned periodically as explained in the previous section. Avoid using products containing ammonia, bleach, or harsh chemicals as they can shorten the life of vinyl.

If you leave the boat for a long period of time, put all cushions on their sides, open all interior cabin and locker doors, and hang a commercially available mildew protector in the cabin.



ALWAYS READ THE LABEL CAREFULLY ON MILDEW PROTECTORS. REMOVE THE PROTECTOR AND ALLOW THE CABIN TO VENTILATE COMPLETELY BEFORE USING THE CABIN.

Corian Surfaces

A mild liquid detergent and water or ammonia-based cleaners will remove most dirt and stains from Corian. For heavy cleaning, oil, and grease, use Fantastik spray cleaner. Rinse with a clean cloth moistened with freshwater. Wipe dry with a clean cloth.

In most cases, Corian can be repaired if accidentally damaged. Minor damage, including scratches, general or chemical stains, scorches or burns, and minor impact marks, can be repaired with a light abrasive cleanser and a Scotch-Brite® pad. For heavier damage, light sanding and machine buffing may be necessary so contact your dealer or a professional.

- Avoid exposing Corian to strong chemicals, such as paint removers, oven cleaners, etc. If contact occurs, quickly flush the surface with water.
- Remove nail polish with a non acetone-based polish remover and flush with water.
- Do not cut directly on Corian counter tops.

13.4 Bilge and Engine Compartment

To keep the bilge clean and fresh, use a commercial bilge cleaner regularly. Follow the directions carefully. The engines and engine room should be kept clean and free of oil accumulation and debris. All exposed pumps and metal components, including the engines and drive gear, should be sprayed periodically with a protector to reduce the corrosive effects of the high humidity always present in these areas.

Maintenance intervals are outlined in the engine owner's manuals. Their recommendations should be followed exactly.

Periodically check the bilge pumps for proper operation and clean debris from the strainers and float switches. Inspect all hoses, clamps and thru-hulls for leaks and tightness on a regular basis and operate all thru-hull valves at least once a month to keep them operating properly.

A flow of air into the bilge is provided by vents located in the hull. Periodic inspection and cleaning of the ventilation ducts is necessary to ensure adequate air circulation.

Engines

Proper engine maintenance is essential to the proper performance and reliability of your inboard engines. Maintenance schedules and procedures are outlined in your engine owner's manual. They should be followed exactly.

Proper engine operation requires a good supply of clean, dry fuel. Improper marina fuel storage techniques, limited boat usage, etc. can cause the fuel to become contaminated. Periodically, it may be necessary to siphon accumulating water and contaminated fuel from the bottom of the fuel tanks.

Algae can grow in the accumulated water in diesel fuel tanks. This condition is most prevalent in warm climates. Periodically adding a high quality diesel fuel additive containing an algaeicide may be required to control algae in your boating area.

The age of fuel can affect engine performance. Chemical changes occur as the fuel ages that can cause deposits and reduce the cetane rating of the fuel. Severely degraded fuel can damage the engine and boat fuel tank and lines. Therefore, if your boat is not being run enough to require at least one full tank of fresh fuel a month, a fuel additive should be added to protect it from degradation. Your dealer or the engine manufacturer can provide additional information on fuel degradation and fuel stabilizers recommended for your engine.

Generator (Optional)

The engine maintenance required on the generator is similar in many ways to the main engines. The engine incorporates a pressure-type lubrication system and a fresh water cooled engine block which is thermostatically controlled. The most important factors to the generator's longevity are proper ventilation and maintenance of the fuel system, ignition system, cooling system, lubrication system and the AC alternator.

Maintenance schedules and procedures are outlined in your generator owner's manual. They should be followed exactly.

Note: Diesel generators charge the battery just enough to compensate for the DC electrical current the engine requires to operate. Therefore, it is important to activate the battery charger to maintain the house battery bank whenever the generator is running.

13.5 Drainage System

It is essential that the following items be done periodically to maintain proper drainage of your boat:

- Clean the cockpit drains with a hose to remove debris that can block water drainage.
- Clean the hardtop, tower or radar arch leg drain holes. This is especially important just before winter lay-up.
- Frequently test the automatic bilge pump switch for proper operation. This is accomplished by lifting the float switch until the pump is activated. You can also use a garden hose to flood the bilge until the water level is high enough to activate the pump.
- Flush all gravity drains with freshwater to keep them clean and free flowing.
- Operate the thru-hull valves once a month and service as required.

Note: All drains and pumps must be properly winterized before winter lay-up.



NEVER USE HARSH CHEMICAL DRAIN CLEANERS IN MARINE DRAIN SYSTEMS. PERMANENT DAMAGE TO THE HOSES AND FITTINGS MAY RESULT.

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Chapter 14:

SEASONAL MAINTENANCE

14.1 Lay-up and Storage

Before Hauling:

- Pump out the head and holding tank. Flush the holding tank using clean water and a deodorizer. Pump out the cleaning solution.
- The fuel tank should be left nearly full to reduce condensation that can accumulate in the fuel tank. Allow enough room in the tank for the fuel to expand without leaking out the vents.

Algae can grow in the accumulated water in diesel fuel tanks. This condition is most prevalent in warm climates. Adding a high quality diesel fuel additive containing an algaecide may be required to control algae during storage in your area.

- The age of fuel can affect engine performance. Chemical changes occur as the fuel ages that can cause deposits and reduce the cetane rating of the fuel. Severely degraded fuel can damage the engine and boat fuel tank and lines. Therefore, if your boat is not being run enough to require at least one full tank of fresh fuel a month, a fuel additive should be added to protect it from degradation. Your dealer or the engine manufacturer can provide additional information on fuel degradation and fuel stabilizers recommended for your engines. Operate the boat for at least 15 minutes after adding the additive to allow the treated fuel to reach the engine.

Your dealer or the engine manufacturer can provide additional information on fuel degradation and fuel additives recommended for your engine. For more recommendations for your specific area, check with your dealer.

- Drain water from the fresh water system.
- Consult the engine owner's manual for detailed information on preparing the engines for storage.

Lifting

It is essential that care be used when lifting your boat. Make sure the spreader bar at each sling is at least as long as the distance across the widest point of the boat that the sling will surround. Put the slings in position. Refer to the Slings Locations drawing in appendix A for the correct position of the lifting slings. There are also sling tags on the side deck. The fore and aft slings should be tied together to prevent the slings from sliding on the hull.

The bow should always be slightly higher than the stern while lifting the boat. This will allow the water to drain from the engine exhaust system and prevent water from surging over the risers and into the engine.



BOATS HAVE BEEN DAMAGED FROM IMPROPER LIFTING AND TRANSPORTING WITH FORK LIFTS. THE FORKS PLACE EXTREME PRESSURE POINTS ON THE HULL AND COULD CAUSE SERIOUS STRUCTURAL DAMAGE. YOUR BOAT IS TOO HEAVY FOR ANY FORK LIFT. NEVER ALLOW ANYONE TO LIFT THE BOAT WITH A FORK LIFT.



SEVERE GELCOAT CRAZING OR MORE SERIOUS HULL DAMAGE CAN OCCUR DURING HAULING AND LAUNCHING IF PRESSURE IS CREATED ON THE GUNWALES (SHEER) BY THE SLINGS. SPREADERS ARE NOT REQUIRED IF BELTS ARE NOT CREATING PRESSURE (CABLE DRUMS FURTHER APART THAN BEAM OF BOAT). FLAT, WIDE BELTING SLINGS AND SPREADERS LONG ENOUGH TO KEEP PRESSURE FROM THE GUNWALES ARE ESSENTIAL. DO NOT ALLOW ANYONE TO HAUL YOUR BOAT WHEN THE SPREADERS ON THE LIFT ARE NOT WIDE ENOUGH TO TAKE THE PRESSURE OFF THE GUNWALES.

Supporting The Boat For Storage

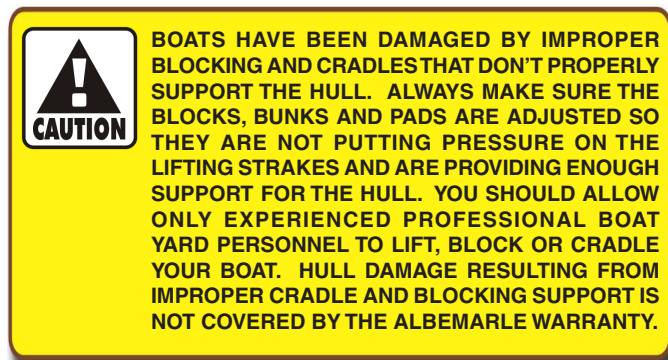
A well-made cradle or proper blocking is the best support for your boat during storage.

When supporting the boat with blocking:

- Make sure the boat is blocked on a level surface and the bow is high enough so that water will drain from the bilge, cockpit and exhaust system.
- Make sure the keel is supported with large, solid wood blocks in at least three points.
- Use at least three heavy duty jacks on each side of the hull and make sure the boat is level from side to side. The jacks must be on a solid surface like packed gravel, concrete or pavement. All of the supports must be set up properly to prevent the boat from shifting while it is in storage.

When storing the boat on a cradle:

- The cradle must be specifically for boat storage and approved by Albemarle.
- Make sure the cradle is well supported and placed on a level surface with the bow high enough so that water will drain from the bilge, cockpit and exhaust system.
- The cradle must be in the proper fore and aft position to properly support the hull. When the cradle is in the correct location, the bunks should match the bottom of the hull and should not be putting pressure on the lifting strakes.



Preparing The Boat For Storage

- Remove the bilge drain plug, if installed.
 - Thoroughly wash the fiberglass exterior, especially the antifouling portion of the bottom. Remove as much marine growth as possible. Lightly wax the exterior fiberglass components.
 - Remove all oxidation from the exterior hardware, and apply a light film of moisture displacing lubricant.
 - Remove propellers and grease the propeller shafts using light waterproof grease.
 - Remove the batteries and store in a cool place. Clean using clear, clean water. Be sure the batteries have sufficient water and clean terminals. Keep the batteries charged and safe from freezing throughout the storage period.
- Note:** Refer to the Electrical System chapter, for information on the maintenance of the AC and DC electrical systems.
- Coat all faucets and exposed electrical components in the cabin and cockpit with a protecting oil.

- Clean out, totally drain and completely dry the fishboxes, sinks and baitwells.
- Thoroughly clean the interior of the boat. Vacuum all carpets and dry clean drapes and upholstery.
- Remove cushions, open the refrigerator and ice maker doors and as many locker doors as possible. Leaving as many of these areas open as possible will improve the boat's ventilation during the storage period.

Note: It is recommended that a mildew preventer be hung in the boat's cabin before it is closed for storage.

- Clean the exterior upholstery with a good vinyl cleaner and dry thoroughly. Spray the weather covers and boat upholstery with a spray disinfectant. Enclosed areas such as the refrigerator, shower basin, storage locker areas, etc. also should be sprayed with this disinfectant.

14.2 Winterizing

Freshwater System

The entire freshwater system must be completely drained. Disconnect all hoses, check valves, etc. and blow all the water from the system. Make sure the water heater and freshwater tank are completely drained. Use only very low air pressure when doing this to prevent possible system damage. Because of the check valve mechanism built in the pump, blowing the lines will not remove the water from the freshwater pump. Remove the inlet and outlet hoses on the pump. Turn the pump on and allow it to pump out any remaining water....about a cupful. A recommended alternative to the above-mentioned procedure is the use of commercially available non toxic, freshwater system antifreeze. After draining the potable water tank, lines and water heater, pour the antifreeze mixture into the freshwater tank, prime and operate the pump until the mixture flows from all freshwater faucets. Be sure to open all hot and cold water faucets, including the freshwater shower in the cockpit and the faucet in the bait prep station. Make sure antifreeze has flowed through all of the freshwater drains.

If your boat is equipped with the optional reverse osmosis drinking water filter, it must be properly winterized by following the manufacturers instructions.

The shower drain system must be properly winterized. Clean debris from the drain and sump and flush for several minutes with fresh clean water. After the system is clean, pump the drain sump as dry as possible. Then pour a potable water antifreeze mixture into the shower drain until antifreeze has been pumped through the entire system and out of the thru-hull.

For additional information refer to the Fresh Water System chapter.

Raw Water System

Completely drain the raw water systems. Disconnect all hoses and blow the water from the system. Use only very low air pressure when doing this to prevent possible system damage. Because of the check valve mechanism built in the raw water washdown and livewell pumps, blowing the lines will not remove the water from that raw water pump. Remove the outlet hose on the pump. Turn the pump on and allow it to pump out any remaining water....about a cupful. A recommended alternative to the above-mentioned procedure is the use of commercially available non toxic, potable water system antifreeze. If potable water antifreeze is used, pour the mixture into a pail and put the raw water intake lines into the solution. Run the pumps one at a time until the antifreeze solution is visible at all raw water faucets, discharge fittings and drains. Be sure antifreeze has flowed through all of the raw water drains.

Engine and Generator Raw Water Systems

Drain all of the sea strainers, heat exchangers and raw water supply and discharge lines for the engine and generator raw water supply pumps. Make sure all seawater has drained from the exhaust system. Some, but not all, engine mufflers could have a drain plug that must be removed to properly drain the muffler. Once this is accomplished, pour a non toxic marine engine antifreeze mixture into a large pail and put the engine raw water intake lines into the solution. Run the engines one at a time until the antifreeze solution is visible at the transom exhaust port, then shut the engine off.

Note: Properly winterize the engines and fuel system by following the engine manufacturer's winterizing procedures located in your engine owner's manuals or contact a Albemarle dealer.

Refer to the Raw Water System chapter for additional information on the raw water system.

Marine Toilet

The marine toilet must be properly winterized by following the manufacturer's winterizing instructions in the marine toilet owner's manual. Drain the intake and discharge hoses completely using low air pressure if necessary. The head holding tank and macerator discharge pump must be pumped dry and three gallons of potable water antifreeze poured into the tank through the deck waste pump out fitting. After the antifreeze has been added to the holding tank, open the overboard discharge valve and activate the macerator pump until the antifreeze solution is visible at the discharge thru-hull.

Note: Make sure you follow the marine toilet manufacturer's winterizing instructions exactly.

Air Conditioners and Freezer

Disconnect and drain the seawater pump intakes and discharge hoses. Remove all water from the sea strainers and thru-hull fittings. Allow all water to drain from the system. The air

conditioner and freezer components must be properly winterized by following winterizing procedure in the manufacturer's owner's manual.

The air conditioning and freezer drain sump system must be properly winterized. Clean debris from the drain and sump and flush for several minutes with fresh clean water. After the system is clean, pump the drain sump as dry as possible. Then pour a potable water antifreeze mixture into each air conditioning condensation pan until antifreeze has been pumped through the entire system and out of the thru-hull. The optional flybridge air conditioner condensation pan drains to the flybridge deck drain system and does not drain to a sump system.

Note: The air conditioning, engine control system, head, and steering systems have specific lay up requirements. Please refer to their owner's manuals for recommended winterizing procedures.

Bilge

Coat all metal components, wire busses, and connector plugs in the bilge with a protecting oil. It is also important to protect all strainers, seacocks and steering components. The bilge pumps and bilge pump lines must be completely free of water and dried out when the boat is laid up for the winter in climates where freezing occurs. Compartments in the bilge that will not drain completely should be pumped out and then sponged until completely free of water. Dry the hull bilge and self-bailing cockpit troughs. Water freezing in these areas could cause damage.

Half Tower

It is imperative that all drain holes in the legs are open and that the legs are completely free of water. Remove the enclosure and thoroughly clean and store in a safe, dry place. Remove all electronics. Coat all wire connectors and bus bars in the helm compartment with a protecting oil.

Clean the aluminum frame with soap and water and dry thoroughly. Apply an aluminum metal protector to the entire frame to reduce corrosion and pitting.



ALWAYS MAKE SURE THE LEG DRAIN HOLES ARE CLEAR WHEN THE BOAT IS LAID UP FOR THE WINTER. WATER TRAPPED INSIDE THE HARDTOP OR TOWER LEGS COULD FREEZE AND CAUSE THE LEGS TO SPLIT.

Tuna Tower

It is imperative that all drain holes in the tower and hardtop legs are open and completely free of water. Tower basket drains should be checked and clear of debris. Remove the tower sun shade, if installed, and belly band or removable cushions and thoroughly clean and store in a safe, dry place. Remove all

electronics. Coat all wire connectors and bus bars in the helm compartment with a protecting oil. Cover the tower basket with a tarp and secure it properly.

Clean the aluminum frame with soap and water and dry thoroughly. Apply an aluminum metal protector to the entire frame to reduce corrosion and pitting. Apply an automotive or boat wax to powder coated aluminum to protect it during storage periods.

Special Notes Prior To Winter Storage

If the boat will be in outside storage, properly support a storage cover and secure it over the boat. It is best to have a frame built over the boat to support the canvas. It should be a few inches wider than the boat so the canvas will clear the rails and allow passage of air. If this cover is fastened too tightly there will be inadequate ventilation and this can lead to mildew, moisture accumulation, etc. It is essential to fasten the canvas down securely so that the wind cannot remove it or cause chafing of the hull superstructure. Do not store the boat in a damp storage enclosure. Excessive dampness can cause electrical problems, corrosion, and excessive mildew.

Whenever possible, do not use the enclosure curtains in place of the winter storage cover. The life of these curtains may be significantly shortened if exposed to harsh weather elements for long periods.



PLACING AN ELECTRIC OR FUEL BURNING HEATING UNIT IN THE BILGE AREA CAN BE POTENTIALLY HAZARDOUS AND IS NOT RECOMMENDED.

Proper storage is very important to prevent serious damage to the boat. If the boat is to be stored indoors, make sure the building has enough ventilation. It is very important that there is enough ventilation both inside the boat and around the boat.

Note: If the boat is to be stored indoors or outdoors, open all drawers, clothes lockers, cabinets, and doors a little. If possible, remove the upholstery, mattresses, clothing, and rugs. Then hang a commercially available mildew protector in the cabin.

14.3 Recommissioning



DO NOT OPERATE THE BOAT UNLESS IT IS COMPLETELY ASSEMBLED. KEEP ALL FASTENERS TIGHT. KEEP ADJUSTMENTS ACCORDING TO SPECIFICATIONS.

Note: It is important and recommended that the fitting out procedure for the marine gear be done by a qualified marine technician. Read the engine owner's manual for the recommended procedure.



BEFORE LAUNCHING THE BOAT, MAKE SURE THE HULL DRAIN PLUG IS INSTALLED.



MAKE SURE THE MUFFLERS HAVE NOT BEEN DAMAGED DURING WINTER STORAGE AND THAT THE DRAIN PLUGS ARE INSTALLED AND PROPERLY TIGHTENED. LOOSE OR MISSING DRAIN PLUGS AND DAMAGED OR LEAKING MUFFLERS OR EXHAUST HOSES WILL ALLOW CARBON MONOXIDE, ENGINE GASES, AND WATER INTO THE BILGE CREATING A POTENTIALLY HAZARDOUS CONDITION.

Note: Not all mufflers are equipped with drain plugs.

Reactivating The Boat After Storage:

- Apply a fresh coat of bottom paint on the hull and running gear.
- Inspect running gear and thru-hull fittings.
- Install the propellers. Refer to the Propulsion System chapter for information on installing propellers.
- Install the drain plug in the hull.
- Charge and install the batteries.
- Check the engines for damage and follow the manufacturer's instructions for recommissioning.
- Check the engine mounting bolts to make sure they are tight.

- Perform all routine maintenance.
- Check all hose clamps for tightness.
- Pump the antifreeze from the fresh and raw water systems and flush several times with fresh water. Make sure all antifreeze is flushed from the water heater and it is filled with fresh water before it is activated.
- If your boat is equipped with the optional reverse osmosis drinking water filter, sanitize the system and install new filters and commission per the manufacturer's instructions.
- Check and lubricate the steering system.
- Clean and wash the boat.
- Install all upholstery, cushions and canvas.

After Launching:

- Carefully check the engines and all water systems for leaks. Operate each system one at a time checking for leaks and proper operation.
- Check the bilge pump manual and automatic switches.
- Test the high water alarms.
- Check the propeller shaft couplings for proper alignment. Allow the boat to remain in the water for several hours before checking the alignment.
- Prime the fuel system and start the engines. When each engine starts, check the exhaust ports for water flow. This ensures that the cooling pump is operating.
- Carefully monitor the gauges and check for leakage and abnormal noises.
- Operate the boat at slow speeds until the engine temperature stabilizes and all systems are operating normally.

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Appendix A: **SCHEMATICS**

12 volt DC

AC Shore to Panel wiring

AC Breaker Panel

DC Battery Switch Panel

Batteries and Cables

Hydraulic Steering

Engine Control System

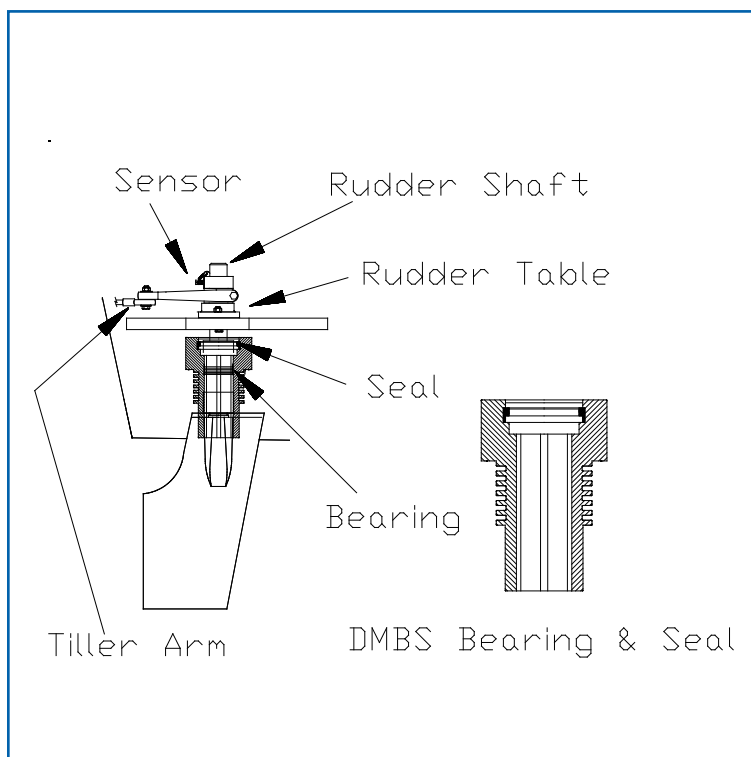
Fuel System

Fuel Valves

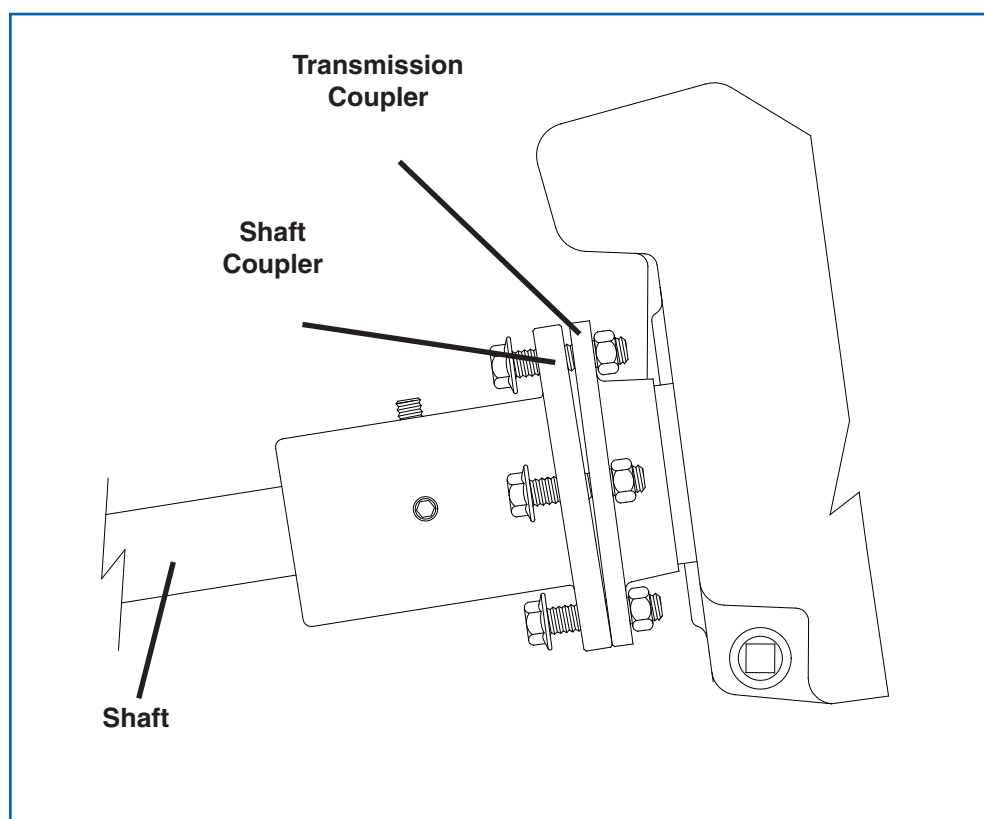
Fresh Water System

Sea Water Systems

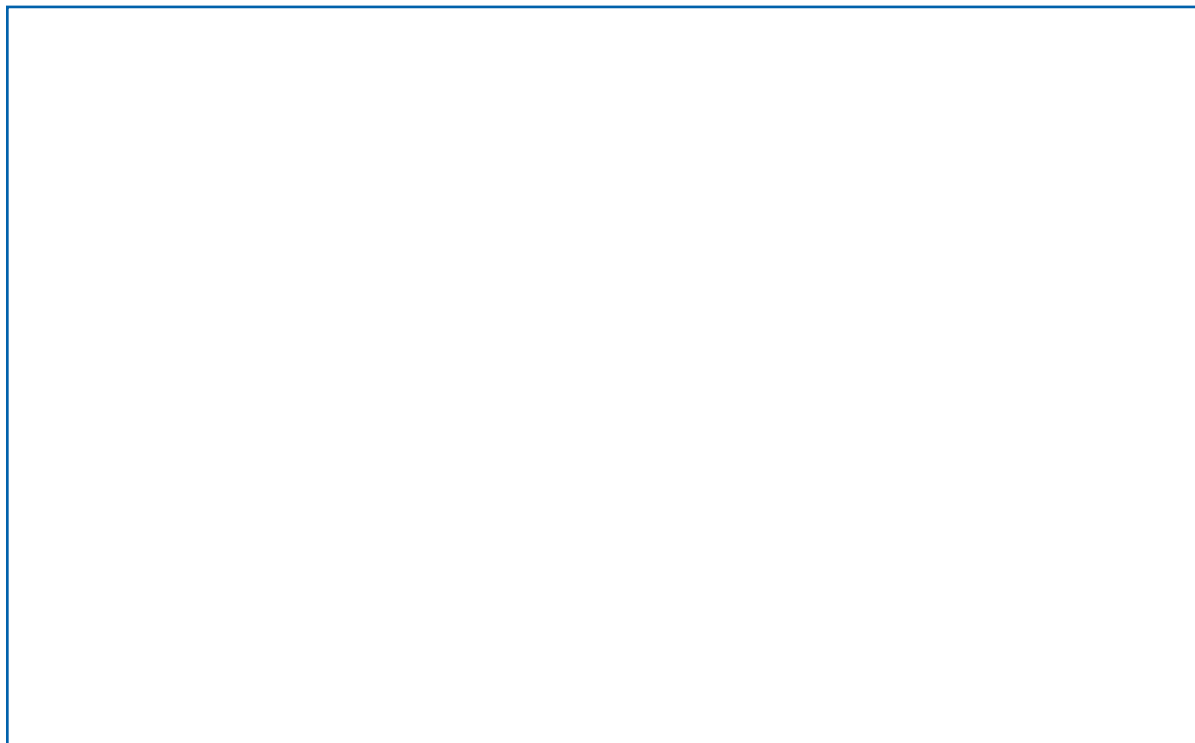
Drainage System



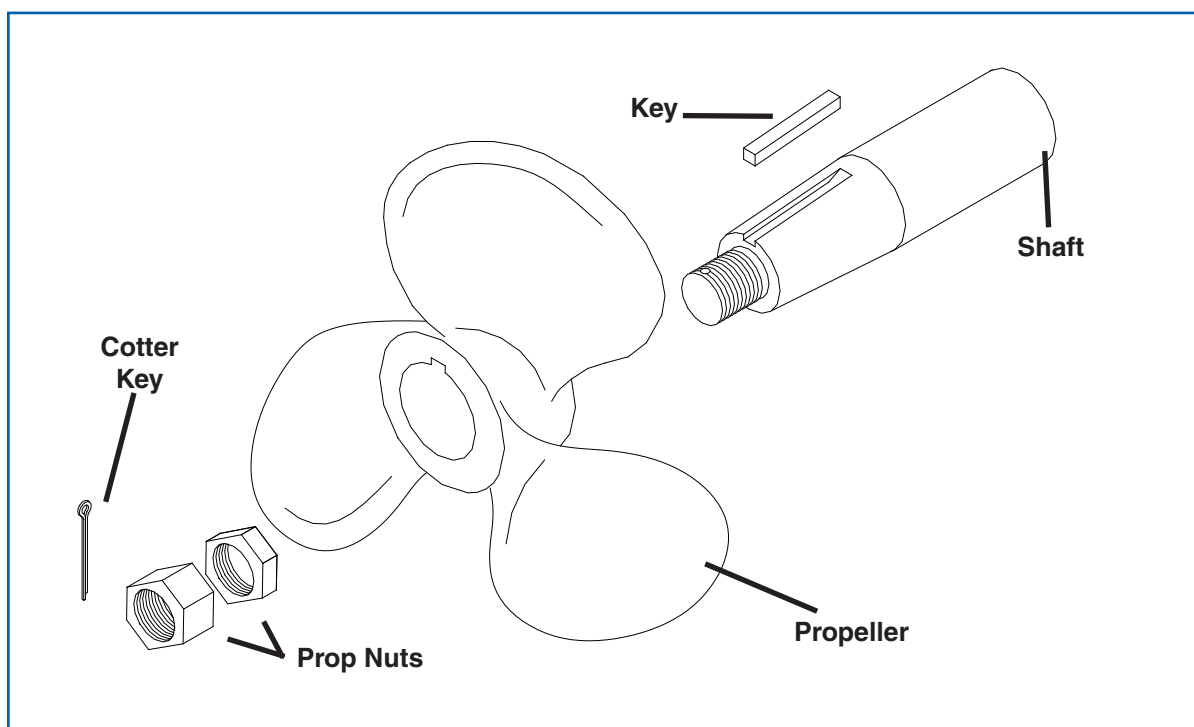
Rudder Assembly



Coupler Assembly



Shaft Seal Assembly



Prop Assembly

Sling Locations

Cradle and Blocking positions

Appendix B:

GENERAL MAINTENANCE SCHEDULE AND LOG

MAINTENANCE	Each Use	Weekly	Monthly	Each Season	Yearly	As Needed
Clean hull below the waterline				X		
Bottom Paint Hull					X	X
Check sacrificial anodes			X			
Wash boat, canvas and hardware	X		X			
Wax exterior gelcoat				X		X
Polish & protect clear curtains				X	X	
Clean and protect hardware						X
Polish and protect acrylic plastic glass				X		
Clean cabin & interior upholstery						X
Clean exterior upholstery		X				X
Service and inspect cabin accessories				X		
Spray metal bilge pumps and components with a protector			X			
Clean Bilge				X		X
Check bilge and engine components for leaks	X		X			
Check & clean raw water strainers	X					X
Engine alignment					X	
Inspect steering and control systems	X					
Service steering and control systems				X		
Inspect fuel system for leaks	X					
Inspect & service fuel system				X		X
Inspect and protect electrical components, wire & battery connectors				X		
Check battery electrolyte & service			X			
Test and inspect AC electrical system & shore power cord				X		
Inspect water systems for leaks				X		
Check blower operation & safety equipment	X					
Check neutral safety switches	X					

MAINTENANCE LOG

[illegible]

MAINTENANCE LOG

[illegible]

MAINTENANCE LOG

[illegible]

MAINTENANCE LOG

[illegible]

MAINTENANCE LOG

[illegible]

Appendix C:

FLOAT PLAN

Albemarle recommends filling out a float plan each time you use your boat for an offshore day trip or a long cruise. Leave this information with a responsible person ashore, like a close friend or relative that you know well.

1. Name of person reporting and telephone number.

2. Description of boat.
Type _____ Color _____ Trim _____
Registration No. _____ Length _____
Name _____ Make _____ Other Info _____
3. Engine type _____ H.P. _____
No. of Engines _____ Fuel Capacity _____
4. Survival equipment: (Check as appropriate)

<input type="checkbox"/> PFDS	<input type="checkbox"/> Flares	<input type="checkbox"/> Mirror
<input type="checkbox"/> Smoke Signals	<input type="checkbox"/> Flashlight	<input type="checkbox"/> Food
<input type="checkbox"/> Paddles	<input type="checkbox"/> Water	<input type="checkbox"/> Others
<input type="checkbox"/> Anchor	<input type="checkbox"/> Raft or Dinghy	<input type="checkbox"/> EPIRB
5. Radio ☐ Yes ☐ No Type _____
6. Automobile license _____
Type _____ Trailer License _____
Color _____ and make of auto _____
7. Persons aboard _____
Name _____ Age _____ Address & telephone No. _____

8. Do any of the persons aboard have a medical problem?
☐ Yes ☐ No If yes, what? _____
9. Trip Expectations: Leave at _____
From _____ Going to _____
Expect to return by _____ (time)
and no later than _____
10. Any other pertinent info. _____
11. If not returned by _____ (time)
call the COAST GUARD, or (Local authority) _____
12. Telephone Numbers.

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DEPARTMENT OF TRANSPORTATION U.S. COAST GUARD C.G. 1865 (REV. 1/88)		BOATING ACCIDENT REPORT		FORM APPROVED OMB NO.211-0010	
The operator/owner of a vessel used for recreational purposes is required to file a report in writing whenever an accident results in: loss of life or disappearance from a vessel, or an injury which requires medical treatment beyond first aid: or property damage in excess of \$200 or complete loss of the vessel. Reports in death and injury cases must be submitted within 48 hours. Reports in other cases must be submitted within 10 days. Reports must be submitted to reporting authority in the state where the accident occurred. This form is provided to assist the operator in filing the required written report.					
COMPLETE ALL BLOCKS (indicate those not applicable by "NA")					
NAME AND ADDRESS OF OPERATOR		AGE OF OPERATOR		OPERATOR'S EXPERIENCE	
		DATE OF BIRTH		This type of boat Other boat operating Exp. [] Under 20 Hours [] Under 20 Hours [] 20 to 100 Hours [] 20 to 100 Hours [] 100 to 500 Hours [] 100 to 500 Hours [] Over 500 Hours [] Over 500 Hours	
OPERATOR TELEPHONE NUMBER		OWNER TELEPHONE NO.			
NAME AND ADDRESS OF OWNER		RENTED BOAT	NUMBER OF PERSONS ON BOARD	FORMAL INSTRUCTION IN BOATING SAFETY	
		[] YES [] NO		[] None [] State [] U.S. Power Squadrons [] USCG Auxiliary [] American Red Cross [] Other (Specify) _____	
VESSEL NO. (this vessel)					
BOAT REGISTER. NO.	BOAT NAME	BOAT MAKE	BOAT MODEL	MFR HULL IDENTIFICATION NO.	
TYPE OF BOAT	HULL MATERIAL	ENGINE	PROPULSION	CONSTRUCTION	
[] Open Motorboat	[] Wood	[] Outboard	No. of engines _____	Length _____	
[] Cabin Motorboat	[] Aluminum	[] Inboard	Horse Power (total) _____	Year built (boat) _____	
[] Auxiliary Sail	[] Steel	gasoline	Type of fuel _____		
[] Sail (only)	[] Fiberglass	[] Inboard			
[] Rowboat	[] Rubber/vinyl	diesel		Has boat had a Safety Examination? [] Outboard [] NO	
[] Canoe	[] Other	[] Inboard-out-		For current year? [] YES [] NO Year _____	
[] Other (Specify)				Indicate whether [] USCG Auxiliary Courtesy Marine Exam [] State/local examination [] Other	
ACCIDENT DATA					
DATE OF ACCIDENT	TIME am pm	NAME OF BODY OF WATER	LOCATION (Give location precisely)	Lat Long	
STATE	NEAREST CITY OR TOWN			COUNTY	
WEATHER	WATER CONDITIONS		TEMPERATURE	WIND	VISIBILITY
[] Clear [] Rain	[] Calm (waves less than 6") [] Choppy (waves 6" to 2') [] Rough (greater than 6") [] Strong Current	(Estimate) Air _____ F° Water _____ F°		[] None [] Light (0 - 6 mph) [] Moderate (7 - 14 mph) [] Strong (15 - 25 mph)	DAY NIGHT [] Good [] Fair [] Poor []
OPERATION AT TIME OF ACCIDENT (Check all applicable)		TYPE OF ACCIDENT (Check all applicable)		WHAT IN YOUR OPINION CONTRIBUTED TO THE ACCIDENT (Check all applicable)	
[] Commercial Activity		[] Drifting		[] Weather	
[] Cruising		[] At Anchor		[] Alcohol use	
[] Maneuvering		[] Tied to Dock		[] Excessive speed	
[] Approaching Dock		[] Fueling		[] No Proper Lookout	
[] Leaving Dock		[] Fishing		[] Fault of Hull	
[] Water Skiing		[] Hunting		[] Restricted Vision	
[] Racing		[] Shin Diving/		[] Flooding []	
[] Towing		[] Floating Object		[] Overloading	
[] Other (Specify)		[] Being Towed		[] Improper Loading	
				[] Hunting	
				[] Operator Inexperience	
				[] Hazardous Waters	
				[] Operator Inattention	
				[] Other (Specify)	
PERSONAL FLOTATION DEVICES (PFDs)			PROPERTY DAMAGE	FIRE EXTINGUISHERS	
Was the boat adequately equipped with COAST GUARD APPROVED FLOTATION DEVICES? [] Yes [] No			Estimated amount	Were they used? (If yes, list Type(s) and number used.)	
Were they accessible? [] Yes [] No			This boat \$	[] Yes [] No [] NA	
Were they serviceable? [] Yes [] No			Other boat \$	Types:	
Were they used by survivors? [] Yes [] No			Other Property \$		
What type? [] I, [] II, [] III, [] IV, [] V (specify) _____			DESCRIBE PROPERTY DAMAGE		
Were PFD's properly used? [] Yes [] No					
Adjusted [] Yes [] No					
Sized [] Yes [] No					
Include any comments of PFD's under ACCIDENT DESCRIPTION on other side of form			NAME AND ADDRESS OF OWNER OF DAMAGED PROPERTY		

BOATING ACCIDENT REPORT

If more than 3 fatalities and/or injuries, attach additional form(s)					
DECEASED					
NAME	ADDRESS	DATE OF BIRTH	WAS VICTIM? <input type="checkbox"/> Swimmer <input type="checkbox"/> Non Swimmer	DEATH CAUSED BY <input type="checkbox"/> Drowning <input type="checkbox"/> Other <input type="checkbox"/> DISAPPEARANCE	WAS PFD WORN? <input type="checkbox"/> Yes <input type="checkbox"/> No What Type?
NAME	ADDRESS	DATE OF BIRTH	WAS VICTIM? <input type="checkbox"/> Swimmer <input type="checkbox"/> Non Swimmer	DEATH CAUSED BY <input type="checkbox"/> Drowning <input type="checkbox"/> Other <input type="checkbox"/> DISAPPEARANCE	WAS PFD WORN? <input type="checkbox"/> Yes <input type="checkbox"/> No What Type?
NAME	ADDRESS	DATE OF BIRTH	WAS VICTIM? <input type="checkbox"/> Swimmer <input type="checkbox"/> Non Swimmer	DEATH CAUSED BY <input type="checkbox"/> Drowning <input type="checkbox"/> Other <input type="checkbox"/> DISAPPEARANCE	WAS PFD WORN? <input type="checkbox"/> Yes <input type="checkbox"/> No What Type?
INJURED					
NAME	ADDRESS	DATE OF BIRTH	NATURE OF INJURY	MEDICAL TREATMENT	
NAME	ADDRESS	DATE OF BIRTH	NATURE OF INJURY	MEDICAL TREATMENT	
NAME	ADDRESS	DATE OF BIRTH	NATURE OF INJURY	MEDICAL TREATMENT	
ACCIDENT DESCRIPTION					
DESCRIBE WHAT HAPPENED (Sequence of events. Include Failure of Equipment. If diagram is needed, attach separately. Continue on additional sheets if necessary. Include any information regarding the involvement of alcohol and/or drugs in causing or contributing to the accident. Include any descriptive information about the use of PFD's.)					
VESSEL NO. 2 (if more than 2 vessels, attach additional form (s))					
Name of Operator	Address		Boat Number		
Telephone Number			Boat Name		
Name of Owner	Address				
WITNESSES					
Name	Address		Telephone Number		
Name	Address		Telephone Number		
Name	Address		Telephone Number		
WITNESSES					
SIGNATURE		Address		Telephone Number	
QUALIFICATION (Check One) <input type="checkbox"/> Operator <input type="checkbox"/> Owner <input type="checkbox"/> Investigator <input type="checkbox"/> Other				Date Submitted	
(do not use) - FOR REPORTING AUTHORITY REVIEW (use agency date stamp)					
Causes based on (check one) <input type="checkbox"/> This report <input type="checkbox"/> Investigation and this report <input type="checkbox"/> Investigation <input type="checkbox"/> Could not be determined		Name of Reviewing Office		Date Received	
Primary Cause of Accident		Secondary Cause of Accident		Reviewed By	

Appendix E:

GLOSSARY OF TERMS

Aft: In, near, or toward the stern of a boat.

Aground: A boat stuck on the bottom.

Amidships: In or toward the part of a boat midway between the bow and stern.

Anchor: A specially shaped heavy metal device designed to dig efficiently into the bottom under a body of water and hold a boat in place.

Anchorage: An area specifically designated by governmental authorities in which boats may anchor.

Ashore: On shore.

Astern: Behind the boat, to move backwards.

Athwartship: At right angles to the center line of the boat.

Barnacles: Small, hard-shelled marine animals which are found in salt water attached to pilings, docks and bottoms of boats.

Beam: The breadth of a boat usually measured at its widest part.

Bearing: The direction of an object from the boat, either relative to the boat's direction or to compass degrees.

Berth: A bunk or a bed on a boat.

Bilge: The bottom of the boat below the flooring.

Bilge Pump: A pump that removes water that collects in the bilge.

Boarding: Entering or climbing into a boat.

Boarding Ladder: Set of steps temporarily fitted over the side of a boat to assist persons coming aboard.

Boat Hook: Short shaft of wood or metal with a hook fitting at one end shaped to aid in extending one's reach from the side of the boat.

Bow: The front end of a boat's hull.

Bow Line: A line that leads forward from the bow of the boat.

Bow Rail: Knee high rails of solid tubing to aid in preventing people from falling overboard.

Bridge: The area from which a boat is steered and controlled.

Bridge Deck: A deck forward and usually above the cockpit deck.

Broach: When the boat is sideways to the seas and in danger of capsizing; a very dangerous situation that should be avoided.

Bulkhead: Vertical partition or wall separating compartments of a boat.

Cabin: Enclosed superstructure above the main deck level.

Capsize: When a boat lays on its side or turns over.

Chock: A deck fitting, usually of metal, with inward curving arms through which mooring or anchor lines are passed so as to lead them in the proper direction both on board and off the boat.

Cleat: A deck fitting, usually of metal with projecting arms used for securing anchor and mooring lines.

Closed Cooling System: A separate supply of fresh water that is used to cool the engine and circulates only within the engine.

Coaming: A vertical piece around the edges of cockpit, hatches, etc. to stop water on deck from running below.

Cockpit: An open space, usually in the aft deck, outside of the cabin.

Companionway: Opening in the deck of a boat to provide access below.

Compartment: The interior of a boat divided off by bulkheads.

Cradle: A framework designed to support a boat as she is hauled out or stored.

Cutlass Bearing: A rubber bearing in the strut that supports the propeller shaft.

Deck: The floor-like platform of a boat that covers the hull.

Displacement: The volume of water displaced by the hull. The displacement weight is the weight of this volume of water.

Draft: The depth of water a boat needs to float.

Dry Rot: A fungus attack on wood areas.

Dry-dock: A dock that can be pumped dry during boat construction or repair.

Electrical Ground: A connection between an electrical connector and the earth.

Engine Beds: Sturdy structural members running fore and aft on which the inboard engines are mounted.

EPIRB: Emergency Position Indicating Radio Beacon. Operates as a part of a worldwide satellite distress system.

Even Keel: When a boat floats properly as designed.

Fathom: A measure of depth. One Fathom = 6 feet.

Fender: A soft object of rubber or plastic used to protect the topsides from scarring and rubbing against a dock or another vessel.

Fend off: To push or hold the boat off from the dock or another boat.

Flying Bridge: A control station above the level of the deck or cabin.

Flukes: The broad portions of an anchor which dig into the ground.

Fore: Applies to the forward portions of a boat near the bow.

Foundering: When a boat fills with water and sinks.

Freeboard: The height from the waterline to the lowest part of the deck.

Galley: The kitchen of a boat.

Grab Rail: Handhold fittings mounted on cabin tops or sides for personal safety when moving around the boat, both on deck and below.

Ground Tackle: A general term including anchors, lines, and other gear used in anchoring.

Grounds: A boat touches the bottom.

Gunwale: The upper edge of a boat's side.

Hand Rail: Rail mounted on the boat, for grabbing with your hand, to steady you while walking about the boat.

Harbor: An anchorage which provides reasonably good protection for a boat, with shelter from wind and sea.

Hatch: An opening in the deck with a door or lid to allow for access down into a compartment of a boat.

Head: A toilet on a boat.

Heat Exchanger: Used to transfer the heat that is picked up by the closed cooling system to the raw cooling water.

Helm: The steering and control area of a boat.

Hull: The part of the boat from the deck down.

Inboard: A boat with the engine mounted within the hull of the boat. Also refers to the center of the boat away from the sides.

Inboard/outboard: Also stern drive or I/O. A boat with an inboard engine attached to an outboard drive unit.

Keel: A plate or timber plate running lengthwise along the center of the bottom of a boat.

Knot: Unit of speed indicating nautical miles per hour. 1 knot = 1 nautical mile per hour (1.15 miles per hour). A nautical mile is equal to one minute of latitude: 6076 feet. Knots times 1.15 equals miles per hour. Miles per hour times .87 equals knots.

Lay-up: To decommission a boat for the winter (usually in northern climates).

Leeward: The direction toward which the wind is blowing.

Length On The Waterline (l.w.l.): A length measurement of a boat at the waterline from the stern to where the hull breaks the water near the bow.

Limber Hole: A passage cut into the lower edges of floors and frames next to the keel to allow bilge water to flow to the lowest point of the hull where it can be pumped overboard.

Line: The term used to describe a rope when it is on a boat.

Lists: A boat that inclines to port or starboard while afloat.

L.O.A.: Boat length overall.

Locker: A closet, chest or box aboard a boat.

Loran: An electronic navigational instrument which monitors the boat's position using signals emitted from pairs of transmitting stations.

Lunch hook: A small light weight anchor typically used instead of the working anchor. Normally used in calm waters with the boat attended.

Midships: The center of the boat.

Marina: A protected facility primarily for recreational small craft.

Marine Ways or Railways: Inclined planes at the water's edge onto which boats are hauled.

Moored: A boat secured with cables, lines or anchors.

Mooring: An anchor permanently embedded in the bottom of a harbor that is used to secure a boat.

Nautical Mile: A unit of measure equal to one minute of latitude. (6076 feet)

Nun Buoy: A red or red-striped buoy of conical shape.

Outboard: A boat designed for an engine to be mounted on the transom. Also a term that refers to objects away from the center line or beyond the hull sides of a boat.

Pad Eye: A deck fitting consisting of a metal eye permanently secured to the boat.

Pier: A structure which projects out from the shoreline.

Pile or Piling: A long column driven into the bottom to which a boat can be tied.

Pitching: The fore and aft rocking motion of a boat as the bow rises and falls.

Pitch: The measure of the angle of a propeller blade. Refers to the theoretical distance the boat travels with each revolution of the propeller.

P.F.D: Personal Flotation Device.

Port: The left side of the boat when facing the bow.

Porthole (port): The opening in the side of a boat to allow the admittance of light and air.

Propeller: A device having two or more blades that is attached to the engine and used for propelling a boat.

Propeller Shaft: Shaft which runs from the back of the engine gear box, aft, through the stuffing box, shaft log, struts, and onto which the propeller is attached.

Pyrotechnic Distress Signals: Distress signals that resemble the brilliant display of flares or fireworks.

Raw Water Cooled: Refers to an engine cooling system that draws seawater in through a hull fitting or engine drive unit, circulates the water in the engine, and then discharges it overboard.

Reduction Gear: Often combined with the reverse gear so that the propeller turns at a slower rate than the engine.

Reverse Gear: Changes the direction of rotation of the propeller to provide thrust in the opposite direction for stopping the boat or giving it sternway.

Roll: A boat's sideways rotational motion in rough water.

Rope Locker: A locker, usually located in the bow of a boat, used for stowing the anchor line or chain.

Rubrail: Railing (often rubber or hard plastic) that runs along the boat's sheer to protect the hull when coming alongside docks, piers, or other boats.

Rudder: A moveable flat surface that is attached vertically at or near the stern for steering.

Sea anchor: An anchor that does not touch the bottom. Provides drag to hold the bow in the most favorable position in heavy seas.

Scupper: An opening in the hull side or transom of the boat through which water on deck or in the cockpit is drained overboard.

Seacock: Safety valves installed just inside the thru-hull fittings and ahead of the piping or hose running from the fittings.

Shaft Log: Pipe through which the propeller shaft passes.

Sheer: The uppermost edge of the hull.

Sling: A strap which will hold the boat securely while being lifted, lowered, or carried.

Slip: A boat's berth between two pilings or piers.

Sole: The deck of a cockpit or interior cabin.

Spring Line: A line that leads from the bow aft or from the stern forward to prevent the boat from moving ahead or astern.

Starboard: The right side of a boat when facing the bow.

Steerageway: Sufficient speed to keep the boat responding to the rudder or drive unit.

Stem: The vertical portion of the hull at the bow.

Stern: The rear end of a boat.

Stow: To pack away neatly.

Stringer: Longitudinal members fastened inside the hull for additional structural strength.

Strut: Mounted to the hull which supports the propeller shaft in place.

Strut Bearing: See "cutlass bearing."

Stuffing Box: Prevents water from entering at the point where the propeller shaft passes through the shaft log.

Superstructure: Something built above the main deck level.

Swamps: When a boat fills with water from over the side.

Swimming Ladder: Much the same as the boarding ladder except that it extends down into the water.

Taffrail: Rail around the rear of the cockpit.

Thru-hull: A fitting used to pass fluids (usually water) through the hull surface, either above or below the waterline.

Topsides: The side skin of a boat between the waterline or chine and deck.

Transom: A flat stern at right angles to the keel.

Travel Lift: A machine used at boat yards to hoist boats out of and back into the water.

Trim: Refers to the boat's angle or the way it is balanced.

Trough: The area of water between the crests of waves and parallel to them.

Twin-Screw Craft: A boat with two propellers on two separate shafts.

Underway: When a boat moves through the water.

Wake: Disrupted water that a boat leaves astern as a result of its motion.

Wash: The flow of water that results from the action of the propeller or propellers.

Waterline: The plane of a boat where the surface of the water touches the hull when it is afloat on even keel.

Watertight Bulkhead: Bulkheads secured so tightly so as not to let water pass.

Wharf: A structure generally parallel to the shore.

Working Anchor: An anchor carried on a boat for most normal uses. Refers to the anchor used in typical anchoring situations.

Windlass: A winch used to raise and lower the anchor.

Windward: Toward the direction from which the wind is coming.

Yacht Basin: A protected facility primarily for recreational small craft.

Appendix 7:

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE AND SOLUTION
CONTROL SYSTEMS	
Steering is slow to respond & erratic.	<ul style="list-style-type: none">• Steering system is low on fluid. Fill and bleed system.• Steering system has air in it. Fill and bleed system.• A component in the steering system is binding. Check and adjust or repair binding component.• There is marine growth on the rudders. Clean running gear.
The boat wanders and will not hold a course at cruise speeds.	<ul style="list-style-type: none">• There could be air in the steering system. Fill & bleed the system.• The rudders are bent or fouled with marine growth. Clean off growth or have rudders straightened.
An engine will not start with the shift control lever in neutral.	<ul style="list-style-type: none">• The control cable is out of adjustment & not activating the neutral safety cut out switch.• The shift control lever is not in the neutral detent. Try moving the shift lever slightly.• There is a loose wire on the neutral safety switch on the transmission. Inspect wires and repair loose connections.• The starter or ignition switch is bad.
PERFORMANCE PROBLEMS	
Boat is sluggish and has lost speed & RPM.	<ul style="list-style-type: none">• The running gear may need to have marine growth cleaned from hull and running gear.• Propeller may be damaged & need repair.• Weeds or line around the propellers. Clean propellers.• Boat is overloaded. Reduce load.• Check for excessive water in the bilge. Pump out bilge, then find & correct the problem.• One of the throttle adjustments has changed and the engine is not getting full throttle. Adjust the throttle cable.• One or both of the engines is not producing adequate power. Have engines checked by a qualified technician.
The boat vibrates at cruising speeds.	<ul style="list-style-type: none">• The engines are out of alignment. Realign engines.• A propeller or propeller shaft is bent. Repair or replace damaged components.• The strut bearing is worn & needs to be replaced.• The running gear is fouled by marine growth. Clean running gear.• A propeller is not installed properly and is binding on the shaft key. Remove the propeller and install it properly.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE AND SOLUTION
ENGINE PROBLEMS	
An engine is running too hot.	<ul style="list-style-type: none"> • The sea strainer is clogged and needs to be cleaned. • The raw water supply line to the pump is kinked. Replace hose. • The engine raw water pump belt is loose or worn. Tighten or replace the belt. • The engine raw water pump impeller is worn or damaged. Repair the pump. • The engine thermostat is faulty and needs to be replaced. • The intake thru hull valve is not open enough. Open valve.
An engine alternator is not charging properly.	<ul style="list-style-type: none"> • The engine alternator belt is loose or worn. Tighten or replace the belt. • The alternator is not charging and must be replaced. • The isolator in the charging system is not working properly. Replace the isolator. • A battery is defective and not accepting a charge.
An engine suddenly will not operate at or above cruise RPM.	<ul style="list-style-type: none"> • The engine emergency system has been activated. The on board computer has sensed a problem and has limited the RPM to protect the engine. Find & correct the problem. • The tachometer is bad and needs to be replaced.
An engine is loosing RPM. The boat is not overloaded and the hull bottom and running gear are clean and in good condition.	<ul style="list-style-type: none"> • The fuel filter could be dirty. Inspect and replace the fuel filter. • The primary fuel filter on a diesel engine may be dirty. Inspect and replace the fuel filter. • The electronic engine control system on the engine is malfunctioning. Repair the engine control system. • The fuel injection system on the diesel engine is out of time or malfunctioning. Repair the fuel injection system.
Both engines suddenly shut down and won't restart.	<ul style="list-style-type: none"> • The automatic fire extinguisher in the engine compartment has activated and the engines were automatically shut down. Check the monitor panel for a red light. If the red light is lit, wait 15 minutes, if safe to do so, to ensure a possible fire is out and inspect the engine compartment. Correct any problems found and activate the override switch and start the engines. • The automatic fire extinguisher automatic shutdown module has failed and interrupted the ignition circuit, shutting down the engines. Check the fire extinguisher monitor. If the green light is lit, carefully check the engine compartment to ensure the system did not activate. If it did not, activate the override switch and start the engines.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE AND SOLUTION
ACCESSORY PROBLEMS	
An air conditioner or the freezer runs for a short time & then cuts out.	<ul style="list-style-type: none"> • The air conditioner pump sea strainer is clogged. Clean the strainer. • The raw water supply thru hull valve is closed. Open the valve. • The raw water system is air-bound. Make sure the thru hull valve is open and run the boat above 15 m.p.h. The speed scoop on the thru hull fitting will force the air lock out of the system. • The air conditioner raw water pump is not pumping and needs to be repaired or replaced.
The carbon monoxide detector sounds the alarm when the engines are running.	<ul style="list-style-type: none"> • The cabin door is open and none of the forward facing vents are open, allowing carbon monoxide to accumulate in the cockpit and cabin. Open the deck hatch to provide proper ventilation. • The carbon monoxide detector is defective and needs to be calibrated by the manufacturer or replaced. Have the boat checked by a professional before condemning the CO monitor.
The fishbox macerator pump runs, but does not pump out the fishbox.	<ul style="list-style-type: none"> • The strainer in the fishbox is clogged preventing the water and waste from getting to the pump. Clean the drain strainer. • The pump has been allowed to run dry and the impeller is damaged. Replace the impeller and rebuild the pump.
The freshwater pump runs, but will not pump water.	<ul style="list-style-type: none"> • The water tank is empty. Fill the tank. • The in-line strainer for the pump is clogged. Clean the strainer. • The intake hose is damaged and sucking air. Replace or repair the hose. • The pump is defective. Repair or replace the pump.
The washdown pump runs, but the pump will not pump water.	<ul style="list-style-type: none"> • The thru-hull valve is not open. Open valve. • The in-line sea strainer for the pump is clogged. Clean the sea strainer. (Diaphragm pumps) • The intake hose is damaged and sucking air. Replace hose. • The pump is defective. Repair or replace the pump.

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE AND SOLUTION
ACCESSORY PROBLEMS	

The washdown or fresh water pump fails to turn off after all outlets are closed.

- There is a leak in a pressure line or outlet. Repair the leak.
- There is an air leak in the intake line. Repair the air leak.
- The pressure switch is defective. Replace the pressure switch.
- The voltage to the pump is low. Check for corroded or loose wiring connections or low battery.
- The strainer is clogged. Clean strainer.
- The pump is defective. Repair or replace the pump.

Reduction in water flow from the bilge pump.

- Impeller screen plugged with debris. Clean screen at the base of the pump.
- The discharge hose is pinched or clogged. Check discharge hose and clean or repair.
- Discharge hose is sagging below the pump and creating an air lock. Reroute hose so it runs uphill from the pump to the thru-hull fitting.
- Low voltage to the pump. Check the battery and wire connections.

The automatic float switch on the bilge pump raises but does not activate the pump.

- The circuit breaker near the battery switch has blown. Reset the circuit breaker.
- The battery is dead. Charge or replace the battery.
- The pump impeller is jammed by debris. Clean pump impeller housing.
- The wire connections in the bilge have corroded. Replace connectors and secure above the bilge waterline.
- The automatic switch is defective. Replace the switch.
- The pump is defective. Replace pump.

The bilge pump will not run when the manual switch is activated.

- The circuit breaker supplying the switch has tripped. Replace or reset the circuit breaker.
- The battery switch is off. Turn on the battery switch and bilge pump breaker.
- The pump impeller is jammed by debris. Clean pump impeller housing.
- The wire connections in the bilge have corroded. Replace connectors and secure above the bilge waterline.
- The switch is defective. Replace the switch.
- The pump is defective. Replace pump.

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